Antiquity

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Editorial Notes

IF one can imagine a millionaire or a government interested in the history of the human race or of civilization and anxious to promote the study thereof, how could they most profitably invest their money today? The question is not wholly academic; such persons may exist, and one would suppose that these subjects might come within the scope of Unesco. One may assume that the advancement of knowledge is accepted as a desirable end. Once upon a time it was imagined that this end was attained merely by writing books about other books or by speculations about the Infinite and the Nature of Being. That time has passed, though Unesco, which is about to launch a new and expensive philosophical journal, still seems to be living in it. Since modern science began in the 17th century it has become evident, from the results obtained, that knowledge is advanced only by a study of facts. This demands two things—leisure, and apparatus or equipment. Students must be enabled to live, and they must have access to the facts. The former proposition is obvious; research is a whole-time occupation. Access to the facts, in archaeology and many other branches of science, involves field-work (which costs money) and work in museums where the results of field-work are stored. That brings us to the crux.

A museum must be not only large enough to store its contents and exhibit a selection, but the contents must be properly arranged so that they can be studied. One that contains merely packing-cases full of objects is, so long as they remain there, useless. It must have a laboratory for conserving and repairing objects; specimens deteriorate if not treated, and broken pots must be mended. Every museum is at present understaffed; almost the whole time of the overworked staff is spent in mere administration, and much of it is wasted in answering impudent questions about trifling expenditure. Only the stoutest can wear down the persistency of ignorant financial clerks and find time for research as well. If a person is fit for the responsible post of Director of Antiquities, he should not have to explain why transport is needed to conduct an excavation. (We have an actual example in mind). Museum staffs, therefore, need enlargement and less pettifogging interference. But when this has been done, there is a crying need for the

endowment of students who may not be members of the permanent staff, to study the contents. There are, for instance, hundreds of cuneiform tablets still untranscribed, uncatalogued and often hardly even examined. By ' uncatalogued ' we do not mean unregistered, but the mere block entry of a collection in the museum register of accessions, though quite necessary, is utterly inadequate. Quantities of papyri are in the same condition. The sort of thing that needs doing is what was done by the National Museum of Wales and the London Museum when they published their famous Catalogues.

Something on the lines suggested has been done in a few countries. But it should be remembered that to endow a student for a particular piece of research may impose a strain on an already overstrained staff ; and in any case endowment is premature if the collections to be studied are still packed up : the strain becomes intolerable when, to the duties of a museum curator are added those of a Conservator of National Antiquities. We do not know how far our remarks may apply to the Archaeological Survey of the Union of South Africa, whose Report for 1950–1 has just reached us. Some of the contents illustrate these remarks so well that we quote them here. The Survey is housed rent-free by the University of Witwatersrand, which is to be congratulated for its public spirit in undertaking what should be a government responsibility. But that accommodation is ' totally inadequate ', and cripples the Survey's activities. ' Unless adequate accommodation is provided in the near future, the Survey will . . . degenerate into a purely administrate body. The vast archaeological wealth of the Union, especially that portion of it which is capable of throwing so much light on the earliest chapters of human history, is crying out for systematic exploration. Prehistorians in all parts of the world look to South Africa for intensified exploratory work, and when it is realised that our obligations are of an international rather than of a purely national order, the fact that we cannot meet them because we have neither the accommodation nor the staff we require, is a sad reflection of the ill-balanced times in which we live '.

We endorse every word of this appeal. We do so the more unhesitingly because, as stated, the need is an international one. Prehistory is one and indivisible ; we cannot investigate the problems of human evolution on a merely national basis ; they are as much the concern of Europeans as of South Africans, and Europeans to-day, in the unhappy state of their continent, look more and more to other lands to carry on the struggle. One would not wish to antagonize governments by caustic criticism, however justified ; it is a fact, however, that in two other regions of Africa—Nigeria and Kenya—the governments concerned have failed in their duty to provide accommodation which in both is due to private enterprise of a very laudable nature.

Our first concrete proposal, therefore, adumbrated in the first paragraph of these Notes, is addressed to governments which should start setting their archaeological houses in order. When this has been done students should be assisted in studying certain aspects of the contents. Exactly what form such endowments should take is not for us to suggest except in very general terms ; specialists will be only too ready to fill in the details. But we think there will be a general agreement about the need, and that in voicing it we are merely giving expression to widely held opinions. We can do so freely because we

are not inhibited by an official position, and readers of ANTIQUITY who are similarly uninhibited can assist by talking about the subject to persons who can influence the powers that be.

Jericho is in the news again. Just a year ago we reported that it was to be excavated under the direction of Miss K. M. Kenyon, D.LIT., F.S.A., forecasting that 'the excavations may produce results of decisive and far-reaching importance', and for that and other reasons supporting the appeal for funds (ANTIQUITY XXV, 116–7). How well justified the forecast was can now be seen from Miss Kenyon's article in this number. Deeply buried at the bottom of the city mound have been found the walls of houses and the stone wall of a city (PLATE II) belonging to a remote epoch before the invention of pottery. These remains were securely sealed below a thick unbroken neolithic stratum containing potsherds of known neolithic types. These pre-pottery houses are considered to date at least from the 4th millennium B.C. This is a discovery of major importance for the history of civilization; it shews that people built houses before they discovered the art of pot-making. Jericho can now claim to be the oldest known town in the world, with a continuous history of at least 6000 years. It is hoped to carry out two more seasons' work there. We congratulate the Director and her colleagues and supporters, and heartily recommend the excavations to the further support of our readers. Subscriptions to the excavation fund may be sent to the Hon. Treasurer, British School of Archaeology in Jerusalem, 2 Hinde St., Manchester Square, London, W.1.

The more observant of our readers may have noticed a slight change in style on the outside of the cover of this number. This is necessitated by an honour bestowed upon the Editor by the University of Cambridge which on June 5th last conferred upon him the Honorary Degree of Doctor of Letters (Litt.D.). It is a distinction which he is proud to record here, not least because, in his Latin oration, the Public Orator referred to ANTIQUITAS as constituting one of the recipient's claims to recognition. Of the other two mentioned, one was the occasion for a superb pun—*μαψ ἀταρ οὐ κατὰ κόσμον* (*Iliad* II, 214); but Homer was not thinking of archaeology and the Ordnance Survey.

In a moment of temporary aberration I implied—in a bad-tempered and inaccurate footnote (No. 101, March, p. 55)—that the Ministry of Works did not publish accounts of its operations. It does, and I withdraw what I said, with regret for having given offence. The Ancient Monuments Inspectorate of the Ministry of Works (Chief Inspector, Mr B. H. St. J. O'Neil, V-P.S.A.) publishes its results in established archaeological journals. Through the courtesy of the Ministry a list of the chief publications during the last 13 years is printed on pp. 153–4. It is a record of which not only the Ministry but British archaeology as a whole may well feel proud. O.G.S.C.

Early Jericho

by Kathleen M. Kenyon

In Professor Garstang's two final seasons' work at Jericho, he established the remote antiquity of the origin of the settlement on that site.[1] He showed that beneath the long sequence of Bronze Age levels lay a considerable depth of Neolithic occupation, with beneath it again soil containing flints of the Palestinian Mesolithic period. At Jericho, therefore, there was evidence of the earliest settled occupation hitherto discovered in Palestine, and the underlying Mesolithic levels suggested that the site might provide evidence for the transition from a food-gathering to a food-producing economy.

Early Jericho is thus a key-site for the prehistory of Palestine and Western Asia. Owing to the great depth of deposit, Professor Garstang was only able to penetrate the lowest strata in a restricted sounding, and further examination was anxiously awaited by those concerned with the beginnings of civilisation in the Near East. When plans were being discussed for the resumption of active work in Palestine by the British School of Archaeology in Jerusalem, and its parent body the Palestine Exploration Fund, the claims of Jericho, both on these grounds and those of its association with Biblical history, made it the first choice, and it was decided to apply for permission to undertake a season's excavation there in 1952. The project was welcomed by the Government of the Hashemite Kingdom of the Jordan, and I would like here to express my gratitude for the enthusiastic co-operation of the Government through its Department of Antiquities, and its Director, Mr G. L. Harding. Two members of the staff of the Department, Auni Beg Dajani and Dr Abdul Karim Gharreybeh, participated in the excavations and did most useful work, while the former was responsible for the most sensational discovery of the season. To our great satisfaction, the Trustees of the American Schools of Oriental Research proposed that the School in Jerusalem should collaborate in the excavations. Staff and students of the American School therefore joined those of the British School in the work, and particular thanks must be expressed to Dr William Reed, Director of the School, and to Dr A. D. Tushingham, who acted as Assistant Director of the excavations.[2]

Jericho lies in the Jordan Rift, some eight miles north of the Dead Sea. To the west it is overlooked by the lower cliffs of the Mountains of Judah, with the towering Mount of Temptation almost overhanging it (*frontispiece*), while to the east it looks out over the flat flood plain of the Jordan, with the mountains of Transjordan in the distance. From the west side of the Tell wells out the copious spring which no doubt was the reason for the ancient settlement, while today it waters the fertile oasis of modern Jericho.

This account of the finds of the season's work is necessarily of a preliminary nature. It is clear that further seasons' work are necessary to elucidate the problems fully. Moreover, the material has been only rapidly examined and the full classification must await its arrival in this country. For this reason, no drawings of pottery or flints can be published here.

Professor Garstang reached the early levels in a deep trench at the north end of the

[1] *Liverpool Annals of Art and Archaeology*, XXII and XXIII.

[2] Generous contributions to the British share of the cost of the expedition were made, in addition to those of the two sponsoring bodies, by the British Academy, Sydney University, Birmingham City Museum, the Ashmolean Museum and the Cambridge Museum of Archaeology and Ethnology, while the Pontifical Biblical Institute also contributed generously to the cost. The members of the staff from the United Kingdom, Australia, Canada and the United States are too numerous to mention by name, but all did most useful work.

JERICHO

SCALE

10 0 10 20 30 40 50 60

METRES

MIDDLE BRONZE AGE GLACIS

MIDDLE BRONZE AGE FOSSE

EARLY BRONZE AGE CITY WALL

A.2.

A.1.

E.2.

E.1.

AREA EXCAVATED BY PROF. GARSTANG

E.3.

TRENCH I.

F.1.

D.1.

L.1.

H.2.

H.1.

ROAD

RESERVOIR

MODERN

FOOTPATH

TO MODERN JERICHO

PP

1952 EXCAVATIONS

PLAN SHOWING – E.B. CITY WALL – M.B. GLACIS – M.B. FOSSE

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Tell, immediately inside the northern wall of the latest Early Bronze Age city (PLAN opp. p. 116, Squares E 6–8, PLATE IIa). The latest surviving level here was Early Bronze III, and the uppermost Neolithic floors (Professor Garstang's level IX) lay at a depth of about 6 m. below the highest point of the Tell here. The main trench was cleared to level XI, about 1 m. lower, and at the west end a pit about 6 m. square at the top, and 2 m. at the base, was carried down a further 6 m. In level IX, the upper portion produced Neolithic pottery, while in the lower part and the preceding levels X–XVII there was no pottery. The 3 m. of deposit below this produced microliths of the Palestinian Mesolithic (Natufian) type.

The characteristic structures of these Neolithic levels were houses with rectilinear rooms and walls of mud-brick, the walls and floors being plastered and burnished. The 1952 expedition continued the clearance below level XI, and the finds are briefly described below. Excavation from the surface of the Tell in a strip immediately to the north was also begun, with the object of uncovering a further area of the Neolithic levels.

In the general examination of the Tell, an area was selected for excavation in the centre of the west side, immediately inside the western line of defences (PLAN opp. p. 116, Squares G 4 and 5, H 4, sites D 1 and F 1). Neolithic occupation was found here again, with pottery identical with that from the earlier excavations, at the surprisingly shallow depth of 1.50 m. from the surface. The latest surviving structures here, in fact, were round houses of mud brick, of the type ascribed by Professor Garstang to E.B.I.

It was thus established that the Neolithic settlement was of considerable size, extending some 120 m. from the north end of the Tell to its centre, and it may of course extend equally far to the south of the centre. On the other hand, a preliminary examination of the pottery did not identify anything comparable with the material published from level VIII of the earlier excavations, called Chalcolithic in the report of the 1935 season, and Late Neolithic in that for 1936. This occupation may therefore have been more restricted in area.

A second fact of importance emerged from the clearance of this area, which was that it seems possible to make a sharper break between the layers with Neolithic pottery and the earlier ones in which flints of Neolithic type are found, but no pottery, than was established in the earlier excavations. The Neolithic pottery here was associated with walls which were largely stone-built in so far as they survived. The building style was rough, of undressed stones. Four phases of structures, all associated with the same general type of pottery, could be identified. It is too early to say whether study of the pottery, which so far has only received a preliminary examination, will show any development of form or technique associated with the successive phases. Mud-brick was certainly employed in some of the periods. The bricks were of a form quite unlike those belonging to any other period, being hand-made and bun-shaped. None was certainly in position. The majority were found in tumbled debris, and those incorporated in walls were employed indiscriminately with stones, and appeared to be re-used material.

Beneath the layers containing Neolithic pottery and associated with structures of this type appeared buildings with mud-brick plastered walls and floors of the same character as those found at the north end of the Tell. As far as the evidence goes at present these were never associated with pottery. Since a change in structural methods is thus apparently associated with the appearance of pottery, it may be that this development was due to outside influence, and was not an indigenous invention. The buildings belonging to this pre-pottery phase so far uncovered in this area were less well-preserved than those of the same type at the north end of the Tell, and their details will therefore be described in connection with the work on that site. The only new structural feature

observed here was a wall built mainly of mud-brick, but incorporating some stone, which contained a series of sockets for substantial timbers.

Clearance of the pre-pottery levels has only just begun over most of the site in the centre of the Tell. In a small area (Site G 2 on plan), however, linking the main site with the trench through the defences down the west side of the Tell, excavation was carried deeper. There, beneath two well-defined layers containing Neolithic pottery, the top of a very substantial wall began to appear. Its face was cleared to its foundations, which were found to be cut into a layer .50 m. above bedrock. Two well-defined surfaces were traced underlying the wall. Against its face was a fill in at least two stages, with associated surfaces, which contained flint implements, but no pottery.

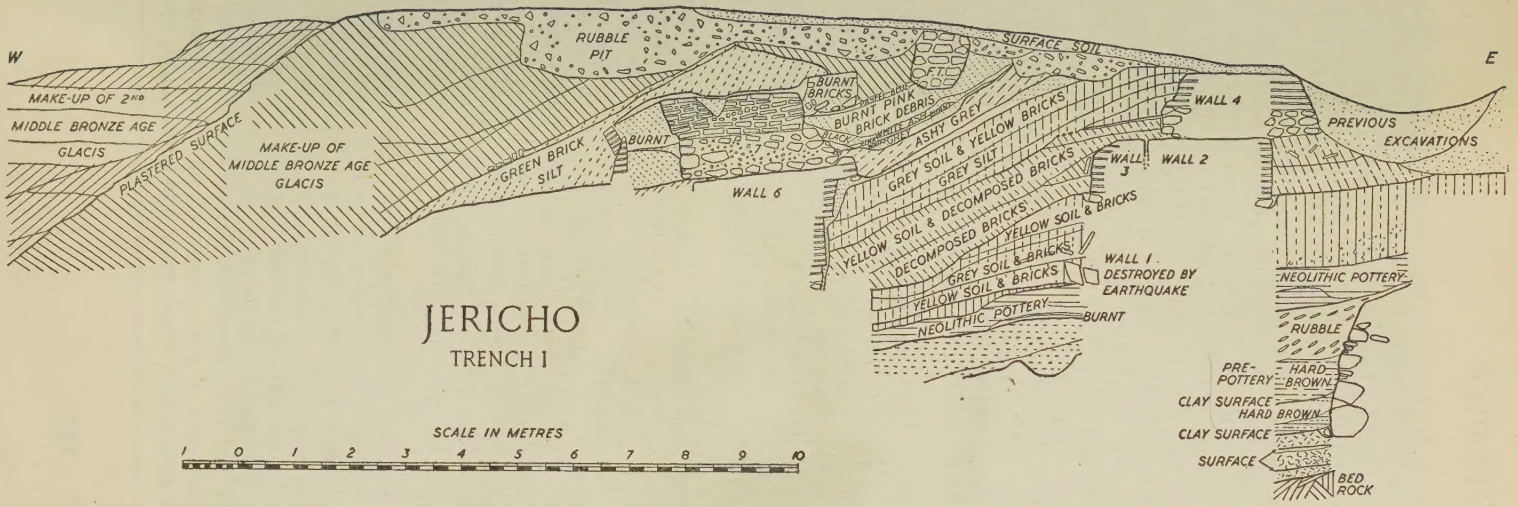
The face of the wall is built of undressed stones, in somewhat irregular courses (PLATE I). Those in the uppermost courses are of medium sizes, but those in the lower courses, not clearly visible in the photograph, since they slope somewhat back, are enormous. The stone on which the hand of the man at the bottom of the photograph is resting is 1.5 m. long and 1 m. high. The upper courses are built on a batter. Excavation has not been carried down at the rear of the wall, but it appears to be built against an earth backing.

This wall is clearly not of a domestic nature, and has in fact every appearance of being a town wall. This is the outstanding discovery of the season. A town wall of this very early stage is at present indeed unique. Its stratigraphical position is absolutely secure (FIG. 2). The levels beneath it and associated with it are pre-pottery, while two deep later fills against its face are still pre-pottery. Over its top are two levels with Neolithic pottery. These in turn are overlain by the long succession of Bronze Age defences of the city, the earliest on a line just slightly in advance of the Neolithic one. On this line there are five successive walls (wall 5 is not visible in the section, but is seen on the south side of the trench, immediately overlying wall 4). The earliest, the destruction of which by an earthquake is strongly suggested in another section, can be dated to E.B.Ib, *c.* 3000 B.C. Wall 6 is set 5 m. further down the slope. Wall 7, superimposed on wall 6, was destroyed by intrusive EB–MB people, with their distinctive pottery and burials, probably about 2100 B.C. Their wall patching the front of wall 7, and the accompanying occupation, was buried beneath the thick make-up of the plastered glacis[3] which is the earliest of three successive Middle Bronze Age defences, dating approximately between 1900 and 1600 B.C., the latest of which is the great stone-lined fosse traced in the earlier excavations. The Neolithic wall can therefore be pushed well back in the fourth millennium, if not earlier.

Neolithic Jericho was thus an extensive settlement and moreover was dignified by an enclosing wall. It can thus lay claim to the title of town, probably the earliest in the world. It is a revolutionary idea in our knowledge of the development of settled occupation that the stage of community organisation involved in the construction of a town wall was reached before the invention of pottery.

Further work is required before the relation of the type of buildings with plastered mud-brick walls and floors to the town wall is established. As already mentioned, these were found best preserved in the site at the north end of the Tell. Excavation here started from Professor Garstang's level XI, a level in which he traced a building of megaron type. Two earlier layers were cleared, of which XII is visible in PLATE IIa, and XIII in PLATE IIb. Though each level is independent, and almost all the walls

[3] More properly a scarp in military terminology, but the term glacis has become so well-established in Palestinian archaeology as describing this type of sloping defence, that it is probably less confusing to continue to use it.



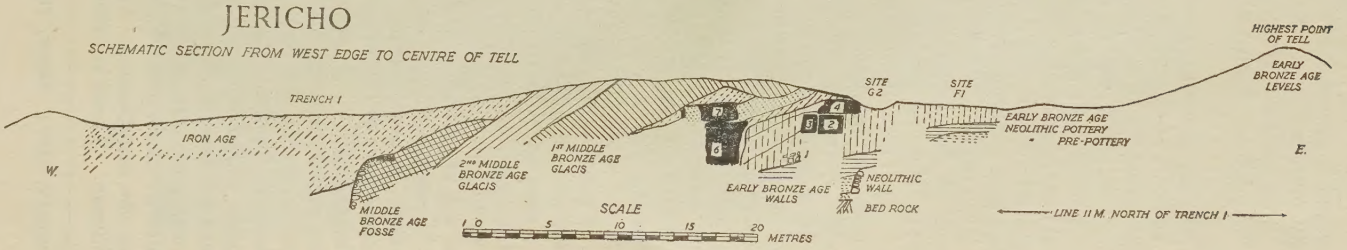


FIG. 2 *above*, SECTION OF EASTERN END OF TRENCH 1; *below*, SCHEMATIC SECTION TO SHOW RELATION OF UPPER SECTION TO WEST SIDE OF TELL

belong to one period only, the same general plan is preserved. In each of them, the main room uncovered is connected with rooms to the east and west by wide doorways flanked by walls with rounded ends. In level XI, the room to the west was the inner room of the Megaron. The walls are straight and solidly built, the rooms approximately rectangular, with rounded angles. Both walls and floors are covered with a fine plaster and highly burnished.

Level XII has several interesting features. To the south of the main room was a small one, not part of the original layout. In the wall at the west end was a small niche, with a rough stone set as a pedestal at its base. In the debris not far away was found a remarkable stone, which exactly fitted the niche and in PLATE IIIa is shown standing in it. The stone is foreign to the immediate neighbourhood, and of volcanic origin. It is pointed oval in section, and is very carefully chipped all over to this shape. The evidence is very suggestive that it was a cult object, and that the room was a small shrine.

Another find possibly of ritual significance is that of the skull of an old man, lacking the lower jaw or any other bones, carefully set upright in the angle of two walls, and sealed above by the contemporary floor (PLATE IVa ; the floor is visible on the left). Perhaps the inhabitants sought to preserve to the household the wisdom of this venerable individual. Two infants were buried in an adjoining room of the same house, and one beneath the floor of level XI.

The walls were very solidly built of mud-brick with mud-mortar of the same consistency. In most cases the bricks were slab-bricks of somewhat irregular size. But in some walls, bricks of a very unusual form were employed (PLATE IVb). They are long and cigar-shaped, somewhat flattened top and bottom. On top they are keyed to take the mortar with a series of impressions of the brickmaker's two thumbs arranged in a herringbone pattern. They were set in a particularly hard mud-mortar. Thumb prints are known on bricks at Teleilat Ghassul, but they are irregular and sparse, and in no way resemble these.

The rooms of each level were found filled with the debris of the superstructure of the walls. There were no signs of violent destruction in any of the levels so far examined. Presumably, when a house became dilapidated, it was pulled down, the debris levelled over, and a new house built on top. Material finds were reasonably numerous. They included a considerable number of worked flints, not yet examined. Of special interest were two small bowls of polished stone. A considerable number of animal bones were found, not yet identified. There were also several fragments of small querns. Some clay-lined bins set in the floor are shown in PLATE IIIb while in the corner of the same room was a hearth. A considerable amount of carbonised material was collected from this area and other parts of the filling, which it is hoped will enable a Carbon 14 dating to be given to the deposits.

Recent explorations have added considerably to our knowledge of the early stages of settled occupation in the Near East, but so far connecting links are lacking. No site closely parallels another, though similarities in technological development in some cases suggest rough contemporaneity. Such technological similarities suggest comparison between Jericho and Jarmo, in the foothills of north-eastern Iraq.[4] The mound of Jarmo was some 7 m. deep at the centre, and fifteen levels have been identified. In the top third of these, pottery is present, but apart from that the assemblage differs little throughout the occupation. The houses were of pisé, contained up to six rooms, and were rectilinear. There is evidence of agriculture, much grain has been found, and the

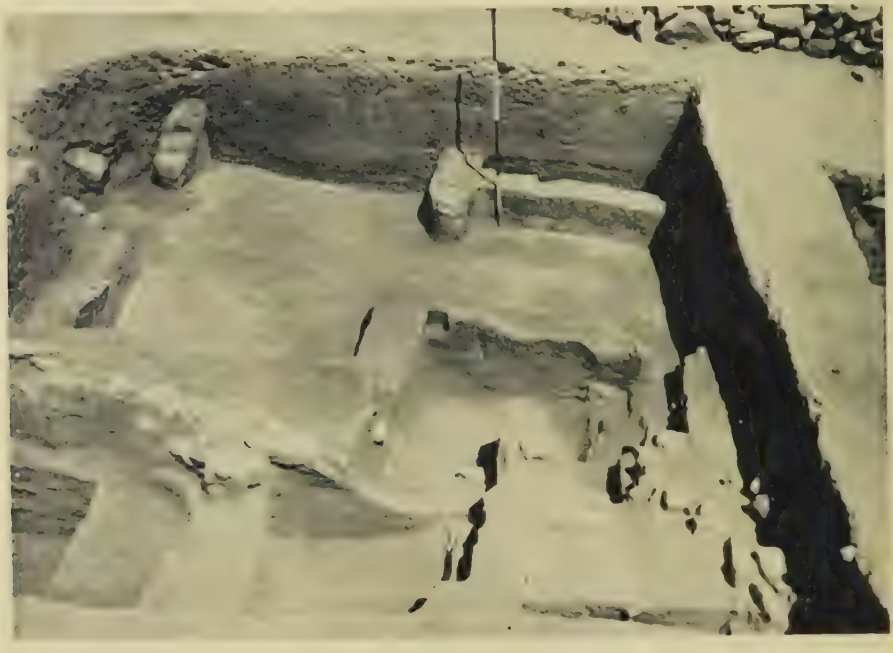
[4] ANTIQUITY, XXIV ; *Sumer*, VII.

PLATE I

NEOLITHIC TOWN WALL

facing p. 120

a. NEOLITHIC HOUSES AT BASE OF DEEP TRENCH IN SQUARE E 7



b. NEOLITHIC HOUSE OF LEVEL XIII IN SQUARE E 7

PLATE III

a SHRINE IN SITE E 2, SQUARE E 7

b. SITE E 1, STORAGE BINS

PLATE IV

a. SITE E 2, SKULL BENEATH FLOOR OF LEVEL XII

b. SITE E 2, MUD BRICKS OF LEVEL XII

bones of animals which were domesticable if not domesticated. The stages of development thus seem to be similar to those at Jericho. The pottery, however, would appear to be considerably rougher than that at Jericho, and neither that nor the flint equipment suggest any direct connection. In technological and economic development, Jarmo is preceded (though probably not immediately) by another site in the same neighbourhood, Karim Shahir, which is an open occupation site not yet developed into a village, with a Mesolithic equipment of late appearance, and suggestions of incipient agriculture. Further work alone can show whether the levels beneath the Neolithic deposits at Jericho represent a similar stage.

Professor Braidwood has suggested a succession of stages for the Iraq material, which may give some indication of chronology : (1) Karim Shahir : open site ; (2) Jarmo : established village, during latter part of occupation of which pottery is developed ; (3) Hassûna : early phase with crude painted pottery, later phase with Samarran painted pottery ; (4) Halâf : elaborate early village material of the Chalcolithic stage ; (5) 'Ubaid, etc. : town sites with temples. For the last-mentioned phase the currently accepted dating is *c.* 4000 to 3500 B.C. At Jarmo, a Carbon 14 test on snail shells, admittedly regarded as unreliable material, gives a date of between 5270 and 4630 B.C., which is a considerably lower date than had been expected.

One other parallel should be noted, and that is the occurrence in the lowest levels at Byblos of polished plaster floors.[5] These are the only ones so far known at all comparable to those at Jericho, but the resemblance is not very close, for the edges of the floors do no more than turn up against the base of the walls, which were in any case of a very flimsy nature. Moreover they are associated with sophisticated pottery with incised decoration, entirely unlike that of Jericho, which in any case does not occur with the floors. This phase at Byblos was assigned by M. Dunand to his Enéolithique A. By comparison with Tabbat al-Hamman[6] and Judeideh[7], M. Dunand places this phase somewhat earlier than the Tell Halâf stage. It is followed by the entirely different Enéolithique B, and the third Byblos stage with isolated rectangular houses, while the fourth stage, that of the first city and earliest Early Bronze level, is dated to the time of Jemdet Nasr, *c.* 3200–2800 B.C., by jar sealings.

Until the full succession at Jericho can be worked out, it cannot be said to what extent the stages at Jericho can be linked up with those suggested elsewhere. Palestinian archaeology has so far no firm connections with other areas prior to the Jemdet Nasr-Egyptian Late Predynastic stage, with which Early Bronze I can be equated. An excellent E.B.Ia tomb cleared this year shows that Jericho was occupied at that time. But how immediately that advanced city stage succeeded the preceding ones, the Chalcolithic of Professor Garstang's level VIII, and the two Neolithic phases which have been studied this year, is not yet clear. The occupation may in any case not have been continuous, for the links of level VIII with the nearby Teleilat Ghassul are very tenuous. M. Dunand's arguments[8] for a Bronze Age date for Ghassul are not convincing, for it has no valid contacts with the widespread Early Bronze Age of Palestine, and cannot have been contemporary with it. Ghassul may therefore fill in a gap when Jericho was unoccupied.

The 1952 season at Jericho has thus made most interesting discoveries and raised important problems. The discovery of a town wall at a stage which is at least technologically early may require a re-assessment of the rate of development of village communities from the food-gathering to the food-producing stages. With these problems in mind, it is hoped to carry out at least two further seasons' work, if sufficient funds are forthcoming.

[5] *Bulletin du Musée de Beyrouth*, 1949–50.
[6] *Syria*, XXI.
[7] Braidwood, *Mounds in the Plain of Antioch.*
[8] *Bulletin du Musée de Beyrouth*, 1949–50.

Approx. Dates	Jericho		Egypt	Mesopotamia
	Mesolithic deposits	3 metres of deposits with microliths		
	Pre-pottery Neolithic	Extensive settlement with well-built houses Town wall		Jarmo: Lower ⅔rds.
	Neolithic with pottery	New structural methods (Possibly T. Ghassul comes here)		Jarmo: Upper ⅓rd. T. Halaf to *c.* 4000 B.C.
	Chalcolithic (or Late Neolithic)	Possibly restricted settlement Level VIII		Al 'Ubaid 4000–3500 B.C. Uruk 3500–3200 B.C.
3200	Early Bronze Age I	7 Successive City Walls	Late Predynastic	Jemdet Nasr 3200–2800 B.C.
3000	Early Bronze Age II		Beginning of Old Empire *c.*3100	
2600	Early Bronze Age III–IV		Pyramid Age to end of Old Empire 1st Intermediate	
2100	Intermediate Early Bronze—Middle Bronze	Destruction of latest E.B. city wall Low-grade culture	Middle Empire	
1900	Middle Bronze Age	Two successive plastered glacis and later Fosse	2nd Intermediate and Hyksos period	
1560	Late Bronze Age I	Site unoccupied	New Empire	
1400–1200	Late Bronze Age II	1400–1325 Occupation on east side of Tell traced in 1930–6 excavations None found in 1952		

Note.—No factual correlations exist prior to the Palestinian Early Bronze Age I.

Flint Tools and their makers

by Humphrey Humphreys

[It should be observed that the Milankovich Chronology, the alternation of core and flake cultures, and the association of flake-tools with Neanderthaloid types and of bifaces with *Homo Sapiens* are all very much in question at the present time. But subject to this qualification, the figures here printed may give some sort of approximation to the length of the periods covered. Editor].

OUR knowledge of man's ancestry and of the early phases of his own existence can only be increased by new discoveries of flint tools and fossil man in association. Such finds have been very rare because industrial excavations like gravel pits, which might yield the evidence if carefully watched by skilled observers, do in fact destroy it. The unearthing of the Swanscombe skull in 1935 shows what might happen if the ability to recognise flint forms became more widespread and it therefore seems worth while to give a popular summary of our present knowledge.

The Pleistocene Period of Geological time—the period marked by successive ice-ages and their inter-glacial periods—is the stage on which the history of the hominids, the human family, has been set. In the last twenty years there has been much progress in our understanding of this period, and the appearance of an acceptable astronomical explanation for four recurrent glaciations has given us a gauge by means of which we can measure their absolute as well as their relative chronology. Croll, Ball and other 19th century astronomers had suggested that recurrent cold periods of climate might be occasioned by rhythmic changes in the earth's rotation and made mathematical estimates of their chronology : but these estimates could not be reconciled with the requirements of the geologist. Milankovitch has now worked out a course of calculations (1920–38) based on three related phenomena, the precession of the equinoxes, changes in the plane of the ecliptic and alterations in the eccentricity of the earth's orbit. These agree well with geological estimates based on quite different evidence and give us the time scale shown in Table 1.

TABLE 1

Divisions of the Pleistocene Geological Period in Europe

600,000	years ago :	Beginning of 1st (Gunz) glaciation.
550,000	,, ,,	Beginning of 1st (ante-penultimate) interglacial period.
500,000	,, ,,	Beginning of 2nd (Mindel) glaciation.
400,000	,, ,,	Beginning of 2nd (penultimate) interglacial period : The great interglacial.
250,000	,, ,,	Beginning of 3rd (Riss) glaciation.
200,000	,, ,,	Beginning of 3rd (last) interglacial period.
100,000	,, ,,	Beginning of 4th (Wurm) glaciation.
20,000	,, ,,	Beginning of Recent geological and climatic condition.

Note 1. The estimates of time are approximate and are given to the nearest 50,000.

,, 2. The proper names for the glaciations (shown in brackets) are those for the Alpine ice ages.

,, 3. The transitions from glacial to interglacial periods and *vice versa* were, of course, slow not sudden.

,, 4. Some of the ice ages, notably the 2nd and 4th, were partially interrupted by milder interstadial periods. See Table 3.

Into this frame-work flints and fossil men both have to be fitted, but a major difficulty at once arises. The evidence of glacial and interglacial conditions has mainly been obtained in Europe. Nearer the equator, although the snow-line on lofty mountains like Kilimanjaro came lower periodically, it was never cold enough for ice to produce the formations (boulder-clays, river terraces, raised beaches, etc.), which give us our geological evidence of ice action in northern regions. It is, therefore, not easy to compare the age of soils in Africa and Southern Asia with those of Europe, or to date accurately finds in the first two continents. Something, however, has been achieved. The essential condition for the establishment of an ice age—more important by far than a big drop in the mean temperature of the atmosphere—is a very long series of cool cloudy summers and wet winters. A big winter precipitation spells heavy snow falls in mountainous regions. If these are not melted by the summer sun they produce glaciers which, pushing ever farther down the valleys, cause a cold climate. When the glacier of the Rhône had its terminal moraine at Lyons there was an ice-age in central France. Now in Africa geologists find evidence of successive pluvial periods—epochs of heavy rain-fall—which have been correlated with the ice-ages of Europe and give us the means of cross-dating finds from the two continents. Unfortunately in S.E. Asia, where very important finds of fossil man have been made, geological evidence is both less complete and less conclusive in kind, and it is not yet possible to fit these finds accurately into the time-scale in Table 1.

Sticks and stones are the tools which Nature provides ready-made for our use and both are employed on occasions by monkeys as well as man. But the first hominids set out to *improve* these natural tools and with them they doubtless fashioned other fabrics, hides, horns and bones. All except the stones have perished and we are left to guess, from the shapes these were made to assume, the functions they fulfilled. Now of all the stones available to early man flint was by far the most useful. It occurs in chalk formations in lumps of a handy size, so that it does not need to be quarried; it is wide-spread over the surface of the globe; and it has the property, when struck by something hard such as another stone, of flaking in a plane controlled by the direction and delivery of the blow. This enables it to be wrought into definite shapes with sharp edges, for it is one of the hardest of natural substances. The detached flakes can be chipped into the shape desired (flake implements) or the central core from which they have been struck can itself be further fashioned into some useful form (core implements). Flint-knapping still survives in England for furnishing flint-locks to fire-arms. Where flints are absent, other hard stones like quartz, obsidian or quartzite, were shaped into tools by early man. Unfortunately S.E. Asia and Southern Africa, where some of the more important finds of fossil man have been made, are flintless areas, and comparison of the quartz tools of Pekin man with the European sequences of flint implements poses an anthropological problem not yet solved.

There are two outstanding features of flint implement distribution—the appearance of exactly similar types in all the main continents of the world, and their remarkable abundance compared with the very scanty remains of fossil man. The first feature seems to be evidence of endless migrations: for example, early Acheulian types occur in every continent except Australia. These were not movements of individuals but of groups, probably small family groups which almost certainly took many thousands of years to come about. Man made Acheulian flints for 300,000 years—half Pleistocene time—and in that period there were a number of severe oscillations of climate which must have affected his food supply and compelled him to shift 'to fresh woods and pastures new'. This vast expanse of time explains too the abundance of the fabricated flints we find.

If a tool broke or its edge became blunt it was a simple matter to make another. The modern knapper can strike off scores of gun-flints in an hour ; even the production of one or two flint tools a day if maintained for 100,000 years would yield enough to furnish every museum in the world with abundant specimens. It is probable that man was always rather a rare animal till he became a food-producer, and that was less than 10,000 years ago. The palaeolithic population of England in an Ice Age was possibly only a few hundred if we can judge from the demographic density of modern stone-age savages like the Tasmanians. Even so their remains are remarkably scarce as, in many soils, bones will perish in the course of time.

During the last twenty years an international nomenclature has found acceptance for the main types of flint implements, the names being derived from the locality (usually French or English) where the type was first recorded and described. These have also been dated to the extent that they have been fitted into the principal divisions of Pleistocene time and this is shown for the principal types in Table 2.

TABLE 2

RELATION OF FLINT FORMS TO CLIMATIC PHASES OF THE PLEISTOCENE IN EUROPE

Climatic Phase	*Flint Forms*
1st—(ante-penultimate) interglacial period.	Abbevillian : early Clactonian at end.
2nd—Glaciation.	None demonstrated.
2nd—(penultimate) interglacial period.	Late Clactonian followed by Acheulian.
3rd—Glaciation.	Levallois flakes early and late : some Acheulian forms persisting.
3rd—(last) interglacial period.	Levallois, Acheulian, Mousterian.
4th—Glaciation.	Mousterian followed by various blade industries. (see Table 3).

Before these are described it is necessary to consider the evidence on which a fabricated flint is distinguished from one shaped by natural forces. It has to be admitted that this evidence is often equivocal and falls far short of scientific proof. Any blow by another hard substance will chip a flint and such blows are often brought about by natural agencies. The pounding of pebbles by breakers on a beach, rapids rattling stones on a river bed, the intense pressures at the base of a glacier, even industrial processes such as the mixing in a cement works of chalk and its flint nodules with clay, all these have been observed to produce flints indistinguishable from many which have been confidently claimed as the works of man, such as the eoliths of Kent. But evidence even more conclusive against such claims is the fact that similar forms have been found in geological gravels dating not merely from the Pliocene, the period before the Pleistocene, but from the still older Miocene rocks laid down many millions of years ago. If there is one conclusion to which all authentic evidence points it is that true hominids are a product of the Pleistocene period—the last half million years. Flints found in association with the East Anglian Crags—geological formations which in that locality mark the transition from Pliocene to Pleistocene—have been claimed as man's handiwork and been given the local names of Norwician, Ipswician and Cromerian. Such claims cannot be unreservedly accepted until their association with fossil remains has been demonstrated.

The earliest flints which are universally admitted to be of human workmanship are the Abbevillian core implements known as hand-axes (FIG. 1). Even they have not been found with human remains, but their general form seems to be a clear expression of design, and they have not been discovered in Europe in soils earlier or later than the period of some 50–100,000 years, which spans their distribution. The evidence of distribution

suggests that the Abbeville core industry developed in central Africa and spread early in the first (ante-penultimate) interglacial to Western Europe and Southern Asia. With the approach of the second ice-age it disappeared from Western Europe and was replaced by a new type of tool, Clactonian flake implements, though there was some overlapping of the two (FIG. 2). When the warmer conditions of the second interglacial had been established Clactonian flints (which have not yet been found outside Europe) gave way in their

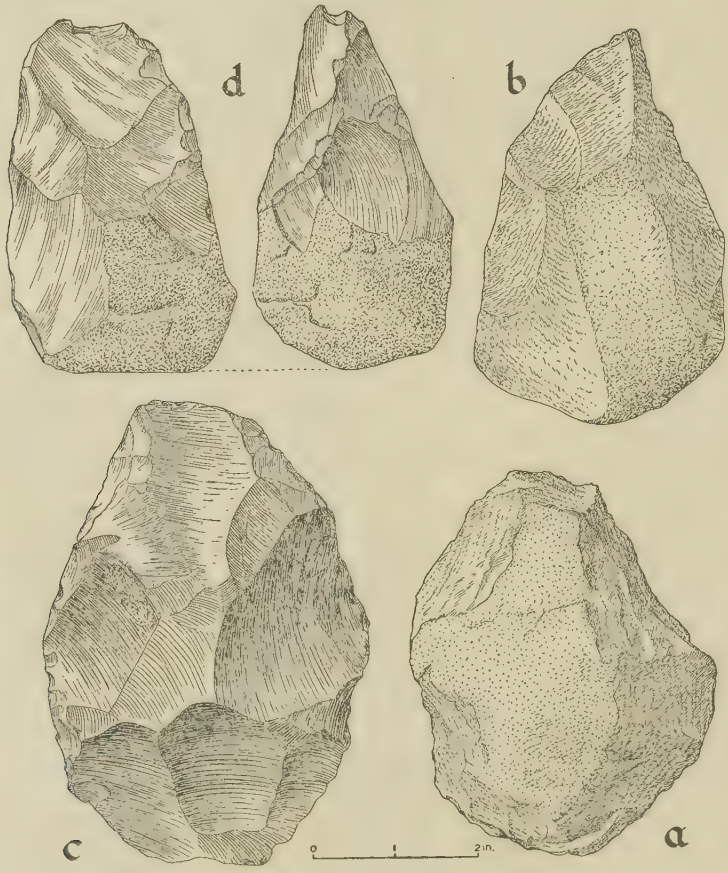


FIG. 1. ABBEVILLIAN TOOLS

a. Lava hand-axe, Tanganyika. *b*. Quartzite hand-axe, Morocco. *c*. Hand-axe, Chelles-sur-Marne. *d*. Hand-axe, 150 ft. terrace of Thames.

turn to Acheulian core implements (FIG. 3) which had probably been evolved in Africa from Abbevillian types and reappeared in Europe when the weather improved. As the cold climate of the third ice-age set in over Europe this story was repeated. Once again the Acheulian flints are found to fade away and be replaced by flake-tools formed by a new process known as the Levallois techique (FIG. 4). A large nodule was first reduced to the shape of a tortoise-shell, dome-shaped on one side and flat on the other ; a blow

delivered on a prepared striking-platform at one end of the core, detached from the flat surface a single large flake which required hardly any retouching to make it a useful tool. The origin of this technique, an early attempt at mass-production, is still obscure. Levallois flakes are widely distributed in Africa and Europe and the art of making them

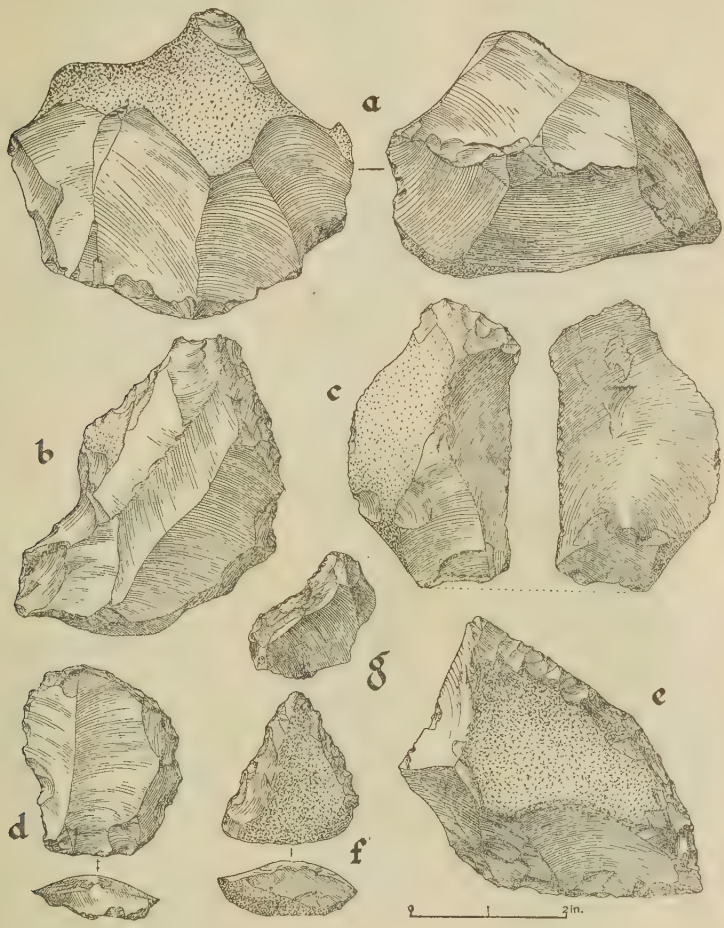


FIG. 2. CLACTONIAN ARTIFACTS

a. Clactonian flint core, and *b*, *c*, flake-tools, 100 ft. terrace, Swanscombe, Kent. *d*. Flake-tool, Clacton-on-Sea. *e*. Acheulo-Clactonian scraper, Suffolk. *f*. Proto-Mousterian flake-tool (Dordogne). *g*. Tayacian flake (Dordogne).

may have originated separately in the two continents or spread from one to the other by migrations of the culture.

This curious association in Europe of the two flake industries, Clactonian and Levalloisian, with the second and third ice-ages and the intrusion of the two core industries, Abbevillian and Acheulian, in the first and second interglacial period, has given rise to the view that these two types of industry are associated with two different

species of hominid, one of whom was more adaptable to a cold climate and fabricated flake-tools, while the other using cores retired southwards into Africa each time the ice advanced only to reappear when it retreated. Now there is clear evidence that in the second half of the Pleistocene period there did exist two species of man both of which have left their remains in Europe, Neanderthal and modern man (*homo sapiens*). The

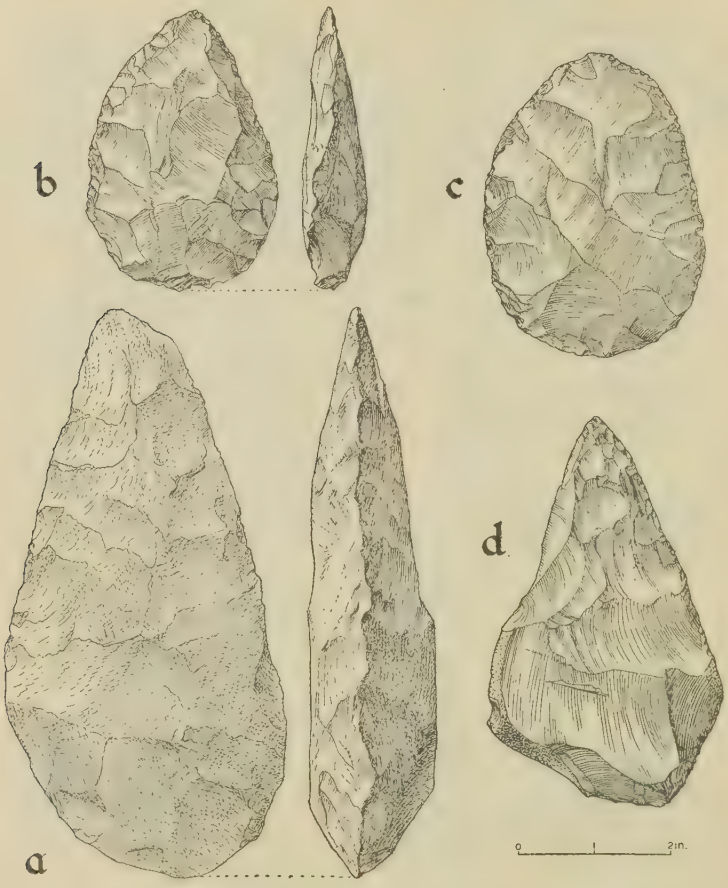


FIG. 3. ACHEULIAN TOOLS

a. Lava hand-axe, Kenya. *b*. Ovate, St. Acheul, near Amiens. *c*. Hand-axe, Palestine. *d*. Hand-axe, of Micoquian type, Suffolk.

characteristic tools of the former are the Mousterian flakes found with his remains in deposits from the latter part of the last interglacial period. Typologically they appear to derive from Clactonian flakes and it so happens that from a late deposit of the first interglacial age laid down at a time when the Clactonian culture was spreading over Europe, there was recovered many years ago a lower jaw—the Heidelberg mandible—which closely resembles the mandible of Neanderthal man. The earliest remnant that

can be attributed to *Homo Sapiens* is the Swanscombe skull dated securely to the second (penultimate) interglacial and in the same gravel bed were found Acheulian tools. There

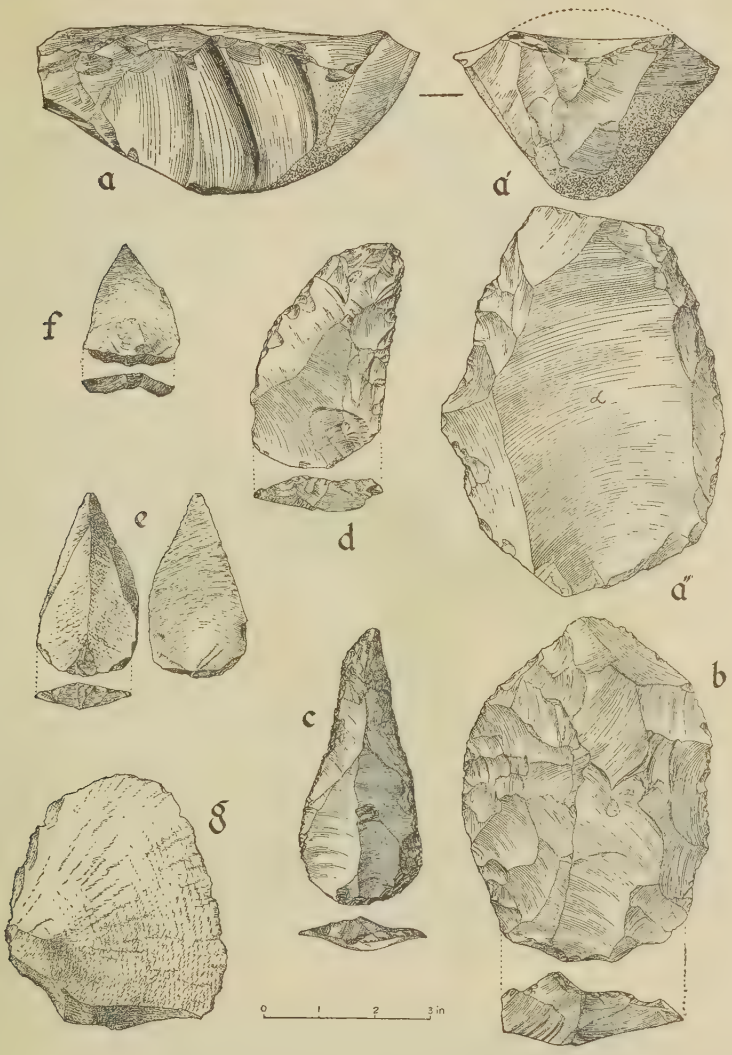


FIG. 4. LEVALLOISIAN AND LEVALLOISOID ARTIFACTS

a, a^1, a^2. Tortoise-core (three views), Baker's Hole industry, Northfleet, Kent. *b*. Flake with faceted striking-platform, similar to the one struck from *a* of the above core; Northfleet, Kent. *c*. Pointed flake-tool from Crayford. *d*. Knife-like flake-tool from Montières (Somme) *e*. Pointed flake-tool (chert), Somaliland. *f*. Pointed flake-tool (quartzite), Swaziland. *g*. Levalloisoid flake (lava), Acheulian 'floor', Kenya.

is thus some evidence for the hypothesis that Neanderthal man—in the main a Eurasiatic species—was by predilection a flake-tool fabricator and took possession of Europe during

the ice-ages, while *homo sapiens*—perhaps of African origin—early developed a core industry and preferred a warmer climate. But only further discoveries of flints and skeletal remains in association can finally confirm or confute this theory.

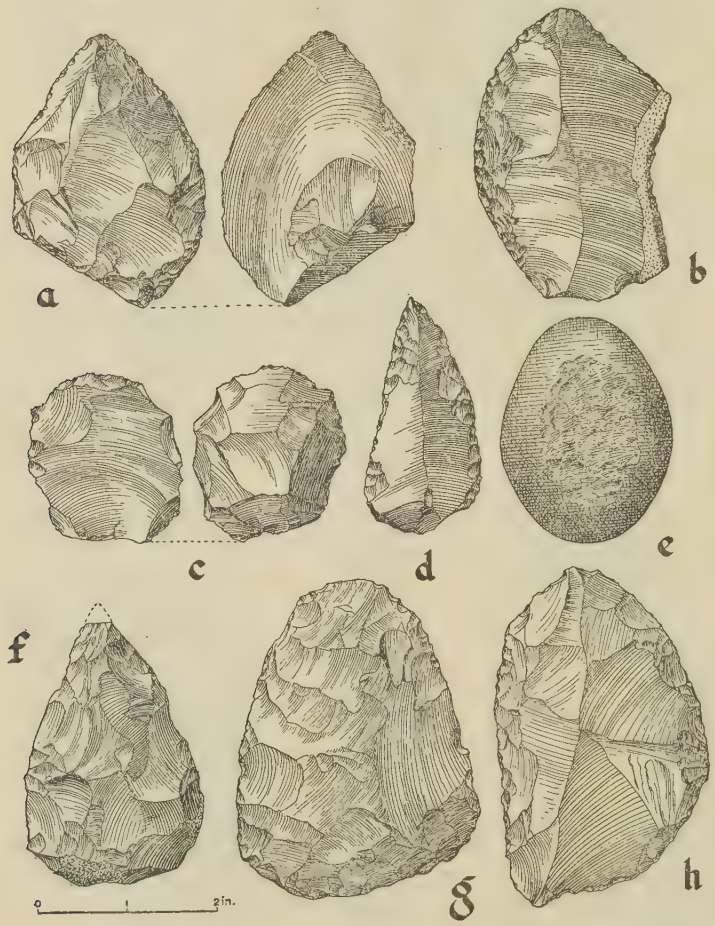


FIG. 5. MOUSTERIAN TOOLS

a, b, Side-scrapers, *c*, disc-core, and *d*, point, from rock-shelter at Le Moustier. *e*. Small anvil or hammerstone, Gibraltar caves. *f*. Hand-axe from Le Moustier. *g*. Hand-axe (chert), and *h*, oval flake-tool (flint), from Kent's Cavern, Torquay.

a-d, Typical Mousterian; *f-h*, Mousterian of Acheulian tradition.

Apart from the two just named, there is only one other hominid whose remains have been recovered in sufficient quantity to establish his separate existence as a species on a secure foundation. More than fifty years ago the skull of a single sub-man was discovered in Java, to which the name of *Pithecanthropus erectus* was given. In the last twenty

years remains of more than a score of individuals have been unearthed in the Choukoutien caves near Pekin and several others in Java, and though the Chinese skulls were at first placed in a separate genus there is now general agreement among anatomists that the variations amongst these different individuals whether from China or Java are not wide enough to preclude the probability that they all belong to the same species. He had an average cranial capacity of about 1,000 c.c. compared with an average for apes of 500 c.c., for modern man of about 1,350 c.c. and for the recently extinct Tasmanians of about 1,200 c.c. He had mastered the use of fire, he successfully hunted wild deer and he fabricated tools of quartz which bear a general resemblance to Clactonian flint flakes. His culture cannot be correlated accurately with that of European flint fabricators though he seems to have lived at a level not lower than that of the Tasmanians. Geological evidence is as yet insufficient to give him his appropriate place in Table 1 though it indicates an early Pleistocene age.

To what uses were these early flint tools put ? All we have to guide us in our guess work are experiments and our observations on the practice of modern savages still living in the stone age when first discovered. Thus the Tasmanians, now all extinct, lived a life so primitive that in spite of a climate with cold winters they had not learned to wear clothing or construct any kind of hut shelter. They made tools by chipping the local sandstone (flint is unknown in Tasmania) and these bore some general resemblance to Clactonian flakes. The chief use to which they were put was the chopping and scraping of wood to form their two hunting weapons, a spear and a club. Their wooden spears were first straightened by hand after being warmed in the fire : the end was then hardened by charring and sharpened by a stone scraper. Their users could aim them accurately enough to kill a kangaroo at 40 yards range. The shape of Clactonian flints suggests that they were used for similar purposes. At the type station of Clacton-on-Sea a yew spear was actually found in an interglacial peaty loam in association with a flint ' spoke-shave '.

No modern savages have been observed using tools of Abbevillian type. The heavier ones could have served quite well as a hoe held in the hand for digging up edible roots and for smashing bones in quest of brain or marrow. The sharper and lighter Acheulian flints could have served for skinning game : but their distribution over all the main continents except Australia, their remarkable similarity everywhere, their persistence for nearly half the Pleistocene period—these facts suggest that they were a general-purpose tool, the jack-knife of primitive man. There is no evidence that they were hafted with a handle like neolithic stone axes. It is probable that a wooden spear like that of the Tasmanians was the principal hunting weapon of palaeolithic man. For big game like the mammoth or the aurochs—and there is ample evidence that he killed both in very considerable numbers—he perhaps employed pitfalls. His flint implements were, therefore, not weapons but tools.

We left the story of flint implement development with the onset of the third glaciation in which the Levallois flake culture predominated in Europe. It was still dominant when the last interglacial dawned, but Acheulian flints in their last (Micoquian) phase soon began to reappear. Many of them were now made from flakes not cores and it may well have been the interaction of these different techniques that produced in the latter part of the last interglacial the Mousterian flake culture of Neanderthal man (FIG. 5). It persisted through the first cold phase of the last ice-age at the end of which their culture and the men that made it were displaced by a totally new type of industry.

The last ice-age was a long one and lasted perhaps 100,000 years : it was marked by three stages of maximum cold separated by two milder interstadial phases.

TABLE 3

SUBDIVISIONS OF THE FOURTH (WURM) PLEISTOCENE GLACIATION IN EUROPE
100,000 B.C. to 20,000 B.C.

Climatic Phase	*Flint Forms*
1st—Cold Spell.	Mousterian with a few early Aurignacian blades.
1st—Milder Interstadial period.	Aurignacian.
2nd—Cold Spell.	Late Aurignacian. In France intrusion of Solutrean blades.
2nd—Milder Interstadial period.	Magdalenian in France. Creswellian in England.
3rd—Cold Spell.	Magdalenian in France. Creswellian in England.

NOTE 1. Early Aurignacian blades are often called Chatelperronian and late Aurignacian blades Gravettian.

„ 2. Solutrean blades show fine pressure flaking of the edges : the technique invaded France from the East.

„ 3. Typical Magdalenian blades are not found in England where a local Aurignacian technique persisted known as Creswellian.

„ 4. This time scale is based on astronomical calculations. Other evidence, e.g. radio-carbon dating suggests that some reduction of these estimates may have to be made, though the terminal date is much the same as that deduced from the evidence of varved clays in Scandinavia.

It was during the first of these milder periods that a race of *homo sapiens* invaded Europe and caused the final disappearance of Neanderthal man. Excavations have shown that he came from Western Asia and brought with him a new type of tool, the blade culture which consisted of narrow parallel-sided flakes shaped into a wide variety of specialised tools. These were the originals of the tools we still employ (FIG. 6). In some the blade was flaked obliquely at one end to form a narrow chisel edge, the burin. In others one edge was left sharp while the parallel edge was chipped or filed into a flat surface for the finger, thus producing the blunt-backed knife we still use (FIG. 7). Others were clearly designed for scraping hides, others were saws. Most of these flints were quite small and it is probable that many of them were mounted in handles of bone or wood. They were used for working bone, antler, mammoth ivory, and no doubt wood also, substances which in their turn became tools such as pins, awls and tips for spears These were often decorated by carving : art had dawned. This new culture is known as Aurignacian and was brought by a tall race of high cranial capacity.

In the long expanse of the last ice-age after the arrival of the Aurignacians, other versions of the blade culture succeeded one another in Western Europe. They have been given different names by the archaeologist and were probably developed by different immigrant tribes. Table 3 shows the principal cultures which are classed together as upper palaeolithic. Their Art often reached an incredibly high standard and from it we can make some deductions about their mental life. They believed in survival after death for they buried their dead with weapons and food for the next world. They practised magic of many kinds and understood the use of fire. They were skilled hunters and slew reindeer, the wild horse, the aurochs, rhinoceros, mammoth and the cave bear. But their flint tools, though they showed variations which enable the expert to distinguish the different cultures, retained the same essential types which the Aurignacians had introduced. All these blade cultures were Eurasian in distribution and it was only at the very end of the last ice-age that they spread to North Africa to form the Capsian industry. Throughout this age the older stone implements of tropical Africa persisted there unchanged.

The final retreat of the ice, which began about 20,000 years ago and lasted for many millennia, produced new problems for palaeolithic man. The steppe and tundra of the European lowlands, on which he had hitherto hunted the wild horse, the reindeer and the mammoth, became converted into dense forest. The big game moved away and men no

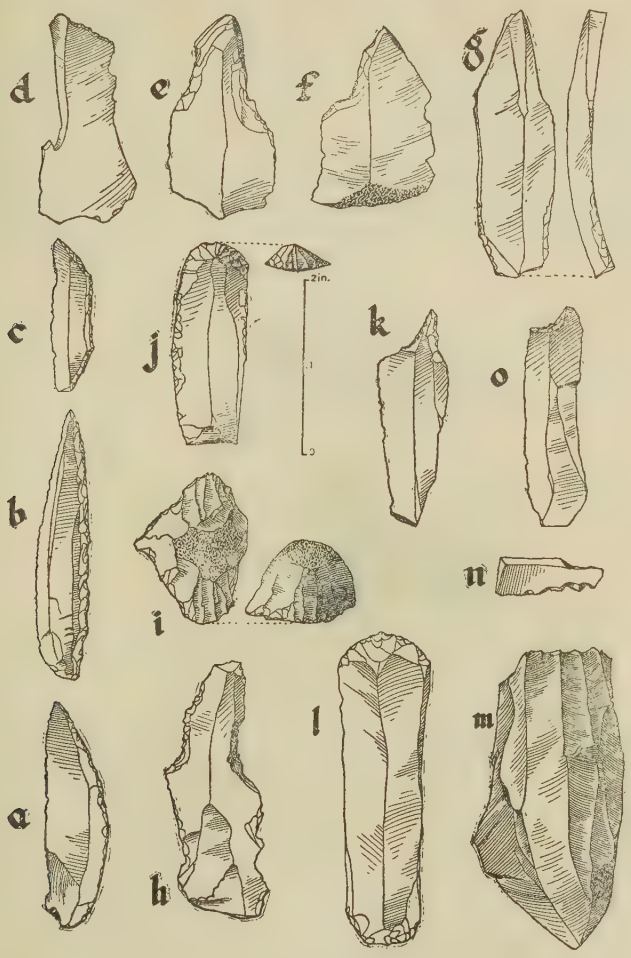


Fig. 6. UPPER PALAEOLITHIC FLINT TOOLS

a. Chatelperronian knife-point, Châtelperron. *b.* Gravettian knife-point (Dordogne). *c.* Trapezoid blade, Creswellian, Kent's Cavern, Torquay. *d.* Gravettian graver or burin, Laugerie Haute (Dordogne). *e.* Aurignacian nosed burin, Vale of Clwyd. *f.* Aurignacian burin (Dordogne). *g.* Magdalenian burin, La Madeleine rock-shelter, (Dordogne). *h.* Double ' spoke-shave ' Aurignacian, Laugerie Haute. *i.* Nosed scraper, Aurignacian, Laugerie Haute. *j.* End-Scraper, Vale of Clwyd. *k.* Solutrean ' hand-drill ', Laugerie Haute. *l.* Double-ended scraper, Magdalenian (Dordogne). *m.* Magdalenian blade-core. *n.* Fragment of saw-blade, Magdalenian (Dordogne). *o.* Magdalenian concave-scraper or ' spoke-shave ' (Dordogne).

doubt migrated with it. Those who remained behind, much reduced in numbers, experienced a decline in their culture, camping by lake and sea shore and living on seals, birds, fish and molluscs. But the men of this ' mesolithic ' period can be credited with some important innovations. They invented the bow and produced flint arrow-heads

for it; they hafted stone-axes with handles for chopping wood and began to grind their edges to make them sharp; they domesticated the dog; and they invented compound tools by mounting a number of very small flint flakes into handles or shafts. These 'microliths' provided barbs for arrows and fish harpoons, teeth for saws and, when agriculture began, blades for sickles. One way of doing this was to mount small flints in the tooth sockets of a large jaw such as that of an ox or horse with edges projecting to form a continuous composite blade: this made a sickle of the right shape. Such an implement has been found in Palestine and throws light on the legend of Samson slaying two hundred Philistines with the jaw-bone of an ass.

The climatic revolution which turned the open plains of Europe into forest changed the Sahara, which had previously been in great part grassland, into a desert, at first no doubt supplied with oases in which game-animals and men alike had to crowd together for the shrinking supplies of water. It was perhaps in this way that man learned first to

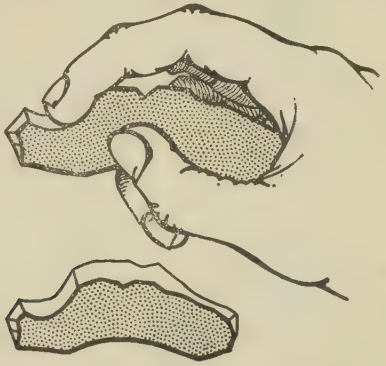


Fig. 7. AURIGNACIAN BLUNT-BACKED KNIFE WITH FINGER-REST SHOWING POSSIBLE GRIP

capture the young, then to tame, then to breed the animals he had hitherto hunted: pastoralism had begun and agriculture accompanied it in the great valleys of Egypt and Irak. From this time onwards the North African coastlands, separated from Central Africa by the Sahara, became part of the Mediterranean cultural province.

The advent of agriculture ushered in the Neolithic age and brought a need for new stone tools—the hoe, the adze, the stone quern as well as the sickle—but the need for hunting implements—knives and arrow-heads—remained. Neolithic flints are distinguished by fine pressure flaking and polishing and their beauty betrays an artistic pleasure in their production. Even after the introduction of metal, flint tools being so much cheaper continued in use, especially for arrow heads which are easily lost. It is not easy for us, living in an era of rapid change, to realise how slowly inventions spread in the ancient world. Agriculture was understood in Egypt and Irak by 5,000 B.C. but it was not till 2,000 years later that it was effectively adopted in Europe. Bronze was invented in Irak in the 4th millennium B.C., but did not reach Britain before 1750 B.C. Iron, smelted in Asia Minor in the 15th century B.C. took a thousand years to arrive in England. Even then flint tools were still employed and remained in use here till the Roman era.

Note.—Figures 1 to 6 are reproduced by permission of the Trustees of the British Museum (Natural History) and are taken from Dr K. P. Oakley's book *Man the Toolmaker*. All the tools figured are of flint unless otherwise stated.

The Oval House

by James Walton

THE place of the oval house in the evolutionary development of folk architecture is of particular interest. Although sporadic in occurrence it has been responsible for one of the principal present-day dwelling types, the hipped-roof. Innocent contends that the round house was the earliest and that the rectangular plan evolved through the intermediate oval stage which was produced by the joining of two circular frameworks. He further postulates that the ridge-pole was devised to connect two such frameworks.[1]

I have already indicated elsewhere that simple rectangular plans have been employed at least from the Iron Age and it is apparent that the rectangular gable-ended structure is certainly as primitive as the circular.[2] Some oval houses undoubtedly resulted from the union of two circular frameworks but the motive force behind this development was a desire on the part of peoples accustomed to building circular huts to emulate the rectangular type. Having seen the increased living space afforded by the rectangular plan, these peoples tried to copy it by joining two of their circular frameworks. This was not the only way in which oval houses originated.

Before discussing the various origins of the oval house it is essential to clarify the nomenclature employed to define the house types within this group. Åke Campbell's use of the term ' oval ' to describe an Irish house with a rectangular plan and rounded external ends has been criticized by Lochlainn[3] and Kissling has proposed the alternatives, ' ovate-oblong ' and ' rounded-rectangular ', although the type defined by these terms is not clear.[4] Under the heading of ' oval houses ' I have included all structures with rounded or partly rounded ends whose length is greater than their breadth. It is a loose grouping of houses with very different origins but archaeologists, ethnologists and travellers have used the term continually in this wide sense over a long period and any change would only result in confusion. What is required is a more scientific classification within the group itself and I suggest the following :—

1. ' Ovate-oblong ' houses. Those with true semi-circular ends and straight sides. Formed by the union of two circular huts.
2. ' Elongated circle ' houses. Those resulting from the elongation of a circular stone beehive hut or any other circular hut type.
3. ' Rounded-rectangular ' houses. Those with an approximately rectangular plan but with rounded corners or sometimes rounded ends. These may have originated in a number of ways.

Only circular huts with vertical walls can be joined together conveniently under one roof and consequently it is only among peoples building cone-on-cylinder or dome-on-cylinder huts that the ovate-oblong house has developed. In East Africa the Yao house is very often of this form as is indicated by Karl Weule's description. ' At Masasi my

[1] Innocent, C. F., *The Development of English Building Construction*, 1916, p. 8–11.

[2] Walton, James, ' Cruck-Framed Buildings in Yorkshire ', in *Yorks. Arch. Journ.*, vol. xxxvii, 1948, pp. 49–66.

[3] Lochlainn, Colm, O., ' Folkliv, 1937, 2–3, 1938, 2 ', in *The Irish Book Lover*, January, 1940.

[4] Kissling, Werner, ' The Character and Purpose of the Hebridean Black House ', in *J.R.A.I.*, vol. lxxiii, 1943, p. 84.

abode is a hut of the purest Yao style, 40 ft. by 20 ft. It is an oval structure whose roof is exactly like an overturned boat . . . The interior forms an undivided whole, only interrupted by the two posts standing as it were in the foci of the ellipse, and supporting the heavy thatched roof' (FIG. 1, 3).[5] This region is one where the rectangular hut type has pushed inwards from the coast into an area where the cone-on-cylinder *rondavel* was previously dominant. The fusion of the two has given rise to the ovate-oblong Yao house. Although it is not constructed as two separate circular frameworks yet its plan indicates that it originated as such. Its length is exactly twice its breadth and the roof-supports are placed at the centres of the two circles. The roof at its extremities consists of two half-cones, the forerunners of the hipped roof.

In Basutoland ovate-oblong houses are found in plenty near Teyateyaneng in the north and in one or two scattered instances elsewhere.[6] The traditional Southern Sotho dwelling was an elaborate beehive hut, the *mohlongoa-fatse*, but this was largely replaced by the cone-on-cylinder *rondavel* introduced by later Bantu migrations from the north. These rondavels have a cylindrical wall of stone, turf or mud capped by a conical thatch. Still later Europeans brought the rectangular hut. Certain families then tried to adapt their circular building technique to a rectangular plan, so producing an ovate-oblong hut. This usually consists of two half-rondavels joined by straight sides (FIG. 1, 4, and PLATE Ib). Once again the ovate-oblong type resulted from adding straight sides to two circular structures placed together. The length of these huts is twice the breadth and the roof extremities are half-cones. In one instance, at Quthing, a woman had built two *rondavels* adjoining each other and she later connected them by straight side walls to produce a single hut. At Teyateyaneng, where the walls are of mud, one woman informed me that they built ovate-oblong huts because the local mud was not suitable for making sharp right-angled corners. In other words, the technical difficulties of building a rectangular hut were too great for those accustomed to building *rondavels* and the ovate-oblong hut was the compromise. Similar huts of recent date are found in the Transkei, where rectangular dwellings are associated with circular *rondavels*. It is significant that a ridge-tree, as such, is not employed in roofing these huts which tends to disprove that the ridge-pole originated in this way.

Sergei P. Tolstov has drawn attention to the existence of ovate-oblong houses amongst the Mangbattu whose traditional dwelling is a cone-on-cylinder hut but who have been influenced by the advance of the West African Negro rectangular house. Once again their attempts to emulate the rectangular plan have resulted in the ovate-oblong form. Similarly, in South America, 'the oval-shaped house is found amongst the Arawak-Yemanadis on the Amazon tributaries, amongst the Caraib-Bakairies of the upper Shingo—that is, amongst tribes living to the south of the chief region in which the rectangular "Maloca" occurs, and to the north of the region in which the round house predominates (the Matto Grosso and the Brazilian highlands)'.[7] This evidence was submitted to support the theory that the oval house has resulted from the fusion of two cultures, on which hypothesis he accounts for the oval Neolithic house type at Khwarizm.

In India, where the houses are predominantly rectangular, ovate-oblong huts are again found where pockets of cone-on-cylinder huts occur among the rectangular. Such a case was described by Stuart Piggott from the Deccan plateau, between Ajanta and

[5] Weule, Karl, *Native Life in East Africa*, 1909, p. 65.

[6] Walton, James, 'South African Peasant Architecture', in *African Studies*, vol. 7, 1948, pp. 139–45.

[7] Tolstov, Sergei P., 'The Early Culture of Khwarizm', in ANTIQUITY, 1946, p. 98.

a. OVATE-OBLONG HOUSE, INDORE, CENTRAL INDIA
Ph. James Walton

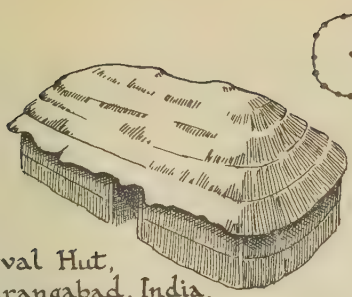
b. OVATE-OBLONG HOUSE, TEYATEYANENG, BASUTOLAND
Ph. James Walton

facing p. 136

PLATE II

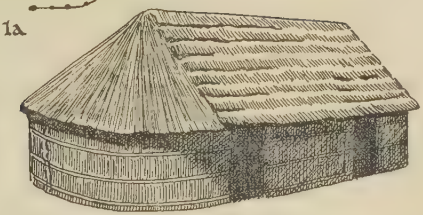
a. 'ELONGATED CIRCLE' HUT TYPE, DORINGBERG, ORANGE FREE STATE, SOUTH AFRICA *–front view*
Ph. James Walton

b 'ELONGATED CIRCLE' HUT TYPE, DORINGBERG, ORANGE FREE STATE, SOUTH AFRICA—*rear view*
Ph. James Walton



1a

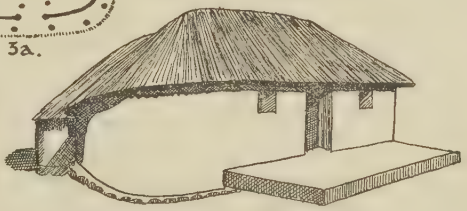
1. Oval Hut, Aurangabad, India. (after Piggott).



2. Oval Hut, Indore, India.

3a.

3. Yao hut, Rovuma Valley, E. Africa (after Weule)

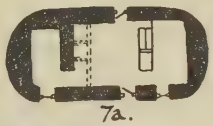


4. Sotho house, Teyateyaneng, Basutoland.

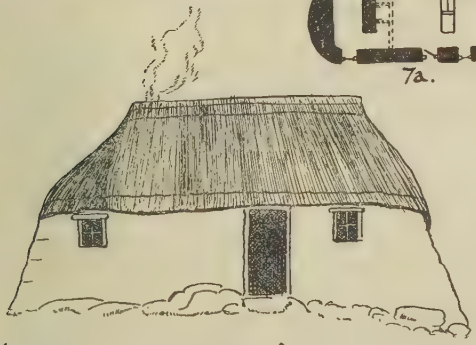
5. Charcoal-burner's hut, Lake District.

6a.

6. Oval Capanna, Anzio. (after Erixon).



7a.



7. 'Rounded-rectangular' house, Inveran, Galway. (after Campbell)

OVAL DWELLINGS

J. W.

FIG. 1

Aurangabad, where ovate-oblong dwelling houses are associated with circular store huts.[8] These do not appear to represent a joining of two circular frameworks so much as an amalgamation between the prevailing rectangular type, with its central row of king-posts, and the cone-on-cylinder hut (FIG. 1 and 1, 2). Similar ovate-oblong huts have been noticed by the writer near Indore, especially among the low-caste tribes who often live in crude circular huts on the outskirts of a village in which all the other dwellings are rectangular (PLATE Ia and FIG. 1, 2).

In Europe, too, houses resulting from the union of two circular frameworks are not unknown. In the Roman Campagna the shepherds and charcoal-burners still erect their round and oval *capanna* (FIG. 1, 6 and 6a). ' To understand the construction it is necessary to know how the shepherds and charcoal-burners on the Campagna are accustomed to build their houses. The start is made by setting 3 or 4 supports in a pyramid and knotting them together at the top with bast rope. If a circular hut is to be made *one* such pyramid support is sufficient, under which the hearth will have its place, and the work proceeds by building the walls and completing the roof, which can usually be done by one man alone. When putting up an oval *capanna* the builders are not content with *one* but usually set up at suitable intervals 3 pyramids of the same kind as described above. A ridge beam is then laid on the forks formed by the support tops above the binding points. The two ends of this beam mark the outer ends of the roof ridge. The centre pyramid here also is placed over the fireplace and is perhaps really only a heritage from the circular hut. It is only in buildings of appreciable length that it has any real bearing function '.[9]

A somewhat similar hut was previously used by the charcoal burners of South Yorkshire and the Lake District (FIG. 1, 5). This was ' formed of two tripods, with the tops of the tripods connected by a ridge-pole, and with the door in the side. It was evidently formed by setting up the framework of two huts side by side, and then completing the construction to form one hut '.[10]

In the region around Alberobello, in Southern Italy, stone beehive-roofed dwellings, known as *trulli*, are still widely employed. These are often single structures consisting of a beehive-shaped stone roof capping low cylindrical or square walls. When more accommodation is required two or more are joined together, each room retaining its own separate roof and usually its own entrance. In some cases, however, two *trulli* have been joined together to form an ovate-oblong house covered by a common slate roof with rounded hipped ends.[11] It represents the latest *trulli* development.

From these descriptions it is apparent that the ovate-oblong form has resulted from the union of two dome-on-cylinder or cone-on-cylinder frameworks and represents an attempt on the part of people accustomed to building circular huts to construct a rectangular dwelling. It is invariably found where later rectangular plans have impinged on existing circular house types.

Just as the desire for increased living space prompted certain peoples to join two circular cone-on-cylinder huts together to form the ovate-oblong type so it urged the builders of stone beehive huts to develop the ' elongated circle ' house plan. ' The oblong form of building can obviously have been developed or been invented in a number

[8] Piggott, Stuart, ' Farmsteads in Central India ', in ANTIQUITY, 1945, pp. 154–6.

[9] Erixon, Sigurd, ' Some Primitive Constructions and Types of Lay-out, with Their Relation to European Building Practice ', in *Folkliv*, 1937, pp. 124–55.

[10] Innocent, C. F., op. cit., p. 12.

[11] *The National Geographic Magazine*, 1930, p. 254.

of ways, as there are varying antecedent conditions in different cases. There is however one oval or oblong form of building which may have its origin in the stone-built domed-roofed beehive house. The construction with a domed roof does not permit of much widening of the space between the walls. Even if very long and suitable flag-stones are at hand, the limits of the cyclopean arch will make it impossible for the primitive builder to enlarge the circumference of his house to any great degree. To get more room he must put two or more circular beehive dwellings together, or he must go over to the oval or oblong form '.[12] In support of this theory Åke Campbell cites Clochán na Carraighe, on Inishmore Island, Aran, Co. Galway, as an example of this type.

The association of elongated-circle and circular hut types in Anglesey and elsewhere supports this view. Excellent examples have recently been studied by the writer at Doringberg, in Orange Free State, South Africa.[13] Up to about 150 years ago this flat plateau was occupied by the Ligoja and Ba-Taung tribes who constructed extensive stone kraals and circular beehive huts which are still in an excellent state of preservation. The earliest huts are circular stone beehives with a maximum diameter of about 9 feet internally. When, later, more room was required it was found impossible to increase the span and so the builders elongated the circle to a length of 14 feet along one axis while the other axis remained the same (PLATE II).

This appears to be the normal method of enlarging the stone beehive hut except when it is first raised on vertical walls as at Alberobello. I cannot find any evidence of two or more stone beehive huts having been united under a common roof. Instances are by no means uncommon in the Hebrides when two beehive huts have been joined together but each retains its separate identity.

Stone houses which have a rounded-rectangular plan still exist in Ireland (FIG. 1, 7 and 7a), Scotland and Wales. They invariably have rounded hipped thatched roofs. The Hebridean black-houses were rounded-rectangular in plan : ' the walls, rounded at the corners, had a receding slope from the ground upwards ; their roofs had no perceptible ridge and did not reach the outer edges of the walls ; with their thatched gables, the roofs continued the rounded contour, so that the houses looked like mounds, and sometimes took on an elongated oval form '[14].

The houses of Achil were ' heaps of rude stones moulded by the tide, procured from the beach, uncemented ' ; they were ' rounded at the gables, and roofed with fern, heath and shingles fastened on by straw bands '.[15] According to Caesar Otway ' an Achil house consisted of a dry stone wall of a form like an obtuse oval, for they had not yet arrived at the art of making a square quoin, or erecting a gable end '.[16]

The origin of these rounded-rectangular houses is not so clearly defined as the two types already discussed and they probably have more than one source of origin. Otway suggests that the Achil houses were rounded because they had not yet arrived at the art of making a square quoin or erecting a gable end. Once again it is the possibility that people accustomed to building round houses were limited in technique when turning to the rectangular plan.

A second possibility is inferred by Kissling when he states that ' the rounded corners and, sometimes, end walls which give these houses a rounded-rectangular form, leave

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[12] Campbell, Åke, ' Notes on the Irish House ', in *Folkliv*, 1938, p. 180.

[13] A detailed survey of these sites is at present being made by the author.

[14] Kissling, Werner, op. cit., p. 82.

[15] Hall, Mr and Mrs S. C., *Ireland : Its Scenery, Character, etc.*, vol. III, 1843.

[16] Otway, Caesar, *A Tour in Connaught*, 1839.

nothing on the outer surface to catch the wind. Whether or not this ' tendency to circularity ' is to be explained as a stage in development from an earlier type of dwelling in the islands, it is undoubtedly suited to the conditions in a windy district '.[17] Were the rounded corners built intentionally to withstand the Atlantic gales ?

Still more recently T. C. Lethbridge has linked the rounded-rectangular stone house with an upturned boat. ' It is not far from the currach or umiak, resting bottom upwards on a ring of stones, to the primitive oval hut with stone walls and a boat roof '.[18] Instances where a boat has been used as a hut roof do not support this thesis ; it appears rather to be a make-shift expedient. There may have been a parallel evolution between house roofs and skin-covered boats but proof is wanting that the one influenced the other. Oval forms in each case may have resulted from the elongation of the circular. Lethbridge does not submit any evidence in support of his supposition. He concludes, ' I think this is probably the way development came but I do not expect the theory to be accepted yet awhile. Too much ink has been expended to prove that the Hebridean Blackhouse is a long house from Norway or Denmark and all the rest of it. The Blackhouse is no such thing. For these long houses of Scandinavia and Denmark, which were later to be found in Iceland and Greenland also, were houses with aisles which the Blackhouse was not. The Blackhouse is a lengthened descendant of the Welsh Cytiau, or house of the form we excavated on Gateholm '.[19] Lethbridge appears to advance two different theories for the origin of the rounded-rectangular blackhouse—first, that it is modelled on the upturned boat, for which hypothesis there is at present little confirmation, and second, that it is the development of an elongated circular stone dwelling, for which there is considerable support.

In his refutation of the association of early basilical Scandinavian dwellings with the blackhouse I think he is certainly correct. The house which he illustrates from Gateholm is a central-passage house with a central hearth, a type which Iorwerth C. Peate has described from Wales[20] and Åke Campbell has noted in Ireland[21]. The blackhouse is certainly associated with the same group. Campbell has pointed out that the central hearth allowed for the hipped roof and he concludes that central hearth houses stand in close relationship to beehive houses of circular or sub-rectangular character.

The rounded-rectangular type may, then, have originated in one of a number of ways :—

1. As a rectangular dwelling the corners of which were rounded because of the limitations of the builders. This may have been due to the nature of the available materials which were unsuitable for making a square corner or it may have been due to the inability of the builders to construct either a gable or a square corner. Houses whose corners are rounded both internally and externally may have originated in this way.
2. As a rectangular dwelling whose corners were rounded to resist storms. Houses with right-angled interiors and rounded exteriors may belong to this class.
3. As a further development of the ' elongated circle ' type. Central hearth blackhouses and certain similar Irish houses probably originated in this way.
4. As a development from the upturned boat resting on a low wall of stones. This is a possibility but supporting evidence is lacking.

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[17] Kissling, Werner, op. cit., p. 78.

[18] Lethbridge, T. C., *Merlin's Island*, 1948, p. 81.

[19] Lethbridge, T. C., op. cit., p. 81.

[20] Peate, Iorwerth C., *The Welsh House*, 1944, pp. 51–84.

[21] Campbell, Åke, op. cit., p. 183.

Books Received

Ancient History, from prehistoric times to the death of Justinian, by C. A. Robinson, Professor of Classics, Brown University. The Macmillan Company, New York, 1951. £2 5*s*. [738 pages, 113 to human origins and the Most Ancient East, the rest to Greece and Rome : chronological tables, bibliography, 83 maps and diagrams, 138 illustrations. First part necessarily compressed and dates controversial ; but if supplemented (or substituted) by Childe's *Most Ancient East* (Routledge and Kegan Paul, 1952, 35*s*), gives good conspectus of ancient history, suitable for Antiquity readers].

Studies Presented to David Moore Robinson on his 70th birthday, Vol. 1 : ed. by George E. Mylonas : Washington Univ., 1951. $25. [Contains bibliography of D.M.R., the excavator of Olynthus, and sections on Prehistoric Greece, Egypt and the Far East, Architecture and Topography, Sculpture, Paintings and Mosaics, lists and index : in all 876 pages and 111 plates. Festschrifts defy summarization but are always, like this one, full of good things—Childe on Slings, Gjerstad on the Agger of Servius Tullius, L'Orange on the Oriental Ancestry of Trelleborg, the Viking round fort in Denmark, and much else].

Penguins and Pelicans

The Romans, by R. H. Barrow. (Pelican), 1949. 1*s* 6*d*. [Described as ' an analysis of Rome's achievement and of her contribution to the founding of Western Civilisation '].

Greek Terracottas, by T. B. L. Webster. (King Penguin), 1951. 3*s*. [An authoritative and badly needed account of these charming figures : dates from 7th to 1st century B.C. : 54 excellent plates].

The Crown Jewels, by Oliver Warner. (King Penguin), 1951. 4*s*. [Illustrated by 16 coloured plates ; topical in 1953].

John Speed's Atlas of England and Wales. 40 plates from John Speed's Pocket Atlas of 1627, introduced and described by E. G. R. Taylor. (King Penguin), 1951. 3*s* 6*d*.

Topography

Innan Sverige Blev Sverige, by Carl Axel Moberg. Hugo Gebers Förlag, Stockholm, 1951. Kr. 7.50. [A concise account of Sweden's prehistoric and early historic archaeology, well illustrated, with useful chronological table].

La Hougue Bie, Jersey : published by the Société Jersiaise (the Museum, Pier road, Jersey), 1951. [This new edition of the original brochure owes most of its excellence to the plans and editorship of Major N. V. L. Rybot, which are a model of their kind. La Hougue Bie is a famous megalithic burial-chamber in a great mound, excavated in 1924. Probable date, Early Bronze Age].

Scientific Survey of South-Eastern Scotland: British Association, 1951. [Ten pages and three original distribution-maps by Prof. Stuart Piggott: 3 pages and map of Roman period by Kenneth Steer; other articles on geography, climate, medieval times, growth of Edinburgh, etc. Prepared for Edinburgh meeting, but is it still obtainable, and if so where and how much? A very useful up-to-date handbook].

Archaeology and Natural Resources of Natal: published for the University of Natal by G. Cumberlege, 1951. 30*s*. [The archaeology, 29 pages, entirely palaeolithic, by the professor of Classics; the rest covers geology (emphasizing culpable lack of government support), climate, resources: fully and well illustrated and a most commendable effort].

Background for Beauty, by Arnold Silcock. Andrew Melrose, London, 1951. £2 10*s*. [Its range covers the whole of the Old World from cave-paintings down—or is it up?—to Picasso: some lovely (and unlovely) pictures sumptuously produced, floating in a welter of verbiage. Maiden Castle's eastern defences appear strangely disguised as neolithic art; how the makers would have laughed!].

The Origins of European Thought about the Body, the Mind, the Soul, the World, Time and Fate; new interpretations of Greek, Roman and kindred evidence; also of some basic Jewish and Christian beliefs, by R. B. Onians. Cambridge, 1951. £2 5*s*. [A learned and scholarly, long-matured product; Professor Onians digs deep into the meaning of words to the thought and practice behind it. It is a fascinating if rather bewildering quest].

The Minoan-Mycenaean Religion and its survival in Greek religion, by Martin P. Nilsson (Lund University); 2nd, revised, edn., 208 figs in text: Gleerup, Lund, 1950. Kr. 50. [Now the standard work on the subject. The 1st edn. was reviewed by Prof. Wace in 1927 in the 1st vol. of Antiquity, pp. 370-2].

Prelude to History; a study of Human Origins and Palaeolithic Savagery, by Adrian Coates, with a foreword by Glyn E. Daniel. Methuen, 1951. £1 2*s* 6*d*. [A useful general handbook of the palaeolithic period, with chapters on History and the Prehistorical, Primitive Mind, Primitive Society, the passing of the Hunter Economy. A book eminently suitable for the general reader and beginner].

Untersuchungen an den Caracallathermen, von Erika Brodner: de Gruyter, Berlin, 1951. DM. 25. [A useful and scholarly study of the Baths of Caracalla at Rome, illustrated by many plans, elevations and photographs not only of Caracalla's but of many others in Italy, N. Africa and Ephesus].

The Comparative Archaeology of Early Mesopotamia, by Ann Louise Perkins. Or. Inst. of Chicago, Studies in Or. Civn., No. 25: Univ. of Chic. Press, 1949. $8.00. [We apologize for our previous failure to notice this very useful compilation; it is one of those books that make the writing of other books possible—and in fact this one has already done so. Indispensable to all students of the Near East, but should now be supplemented by Delougaz and Gawra II].

The Egyptian Coffin Texts: IV. Texts of Spells 268–354, by Adrian de Buck (Leyden): Or. Inst. Chic. publns., Vol. 67, 1951. £3 15*s*. [Transcriptions of the original inscriptions, without translations, which presumably will eventually be published also; this volume is for specialists only].

THE EXCAVATION OF MEDINET HABU, Vol. IV: the Mortuary Temple of Ramses III, Part II, by UVO HOLSCHER, with contributions by RUDOLF ANTHES, translated by ELIZABETH B. HAUSER. Or. Inst. Chic. publns., Vol. 55, 1951. [A splendid concise but adequate account, with plans, restorations, photographs and coloured drawings, of the temple (12th cent. B.C.), built as a fortress but rather for display than use].

ATLAS OF ISLAMIC HISTORY, compiled by H. W. HAZARD: Princeton Univ. Press (London: G. Cumberlege), Vol. 12 of Princeton Oriental Studies, 1951. £1 5*s*. [A useful compilation showing the Islamic World century by century down to the present, with a very handy conversion-table of dates. Minor criticisms of detail:—The Shilluk (marked 7th-16th cents.) generally supposed only to have arrived there in 16th; Islamic penetration of S. Ethiopia in 12th cent. (Sultanate of Shoa, inscribed tombstones in Rift Valley) not indicated].

SWEDISH ARCHAEOLOGICAL BIBLIOGRAPHY, 1939–48, ed. by S. JANSON and O. VESSBERG: publd. for the S wedish Arch. Soc. by Almqvist and Wicksell, Uppsala, 1951. Kr. 25. [This admirable undertaking, in English, to be repeated at five-yearly intervals, covers not only Sweden but also the work of Swedish archaeologists all over the world. Their work is fully summarised (pp. 9–291); then comes the bibliography proper (pp. 292–360) of 1244 items].

PALEONTOLOGY AND MODERN BIOLOGY, by D. M. S. WATSON. Yale University Press. $4.00. (London: G. Cumberlege, £1 5*s*), 1951. [A fascinating anatomical study, but outside the scope of ANTIQUITY].

THE STORY OF PUEBLO POTTERY, by H. M. WORMINGTON. Denver Museum of Natural History, Museum Pictorial No. 2. $1.50 to subscribers. [Traces the development of this still living craft for more than 1500 years, and illustrates it by five photographs by ARMINTA NEAL. The style, aesthetically satisfying, recalls that of the early prehistoric painted pots of Iraq and Susa].

THE STONE AGE CULTURES OF NORTHERN RHODESIA, by J. D. CLARK: published by the S. African Archaeological Society, P.O. Box 31, Claremont, Cape, 1951. £1 1*s*. [This is a book that was very badly needed, bringing together what is known about palaeolithic and neolithic man and the cultural and climatic succession in the Upper Zambezi valley and its tributaries. Authoritative and indispensable for all prehistorians everywhere].

SUMMARY GUIDE to the Department of Antiquities, Ashmolean Museum, Oxford: printed for the Visitors, 1951: with illustrations 5*s*, without, 2*s*. [A useful account, with a brief history of this famous old institution of 17th cent. origin: 86 pages and 73 plates, well worth the extra 3*s*, but one has the impression, perhaps erroneously, that not all the objects illustrated are on exhibition].

GELANDE UND KARTE, by EDUARD IMHOF: EUGEN RENTSCH, Erlenbach-Zürich, 1950 [A finely produced manual of topography and cartography, profusely illustrated by plans, diagrams and illustrations].

LOST CITY OF THE INCAS: the story of Machu Picchu and its builders, with 59 plates and a map, by HIRAM BINGHAM: Phoenix House, London, 1951. £1 1*s*. [A popular account of this city and its excavation].

ENGLISH DRAWINGS of the 10th and 11th centuries, by F. WORMALD. Faber and Faber, 1952. £1 10*s*.

THE ARCHAEOLOGICAL JOURNAL, Vol. CVI, Supplement. London, Royal Archaeological Institute of Great Britain and Ireland, 1952. 12*s* 6*d* to non-members. [This Memorial Volume to Sir Alfred Clapham contains a memoir by C. A. Ralegh Radford, a bibliography by Vera M. Dallas, four posthumous articles by Clapham, and papers on Earthworks by R. E. M. Wheeler, on Bishop Alnwick of Lincoln by A. Hamilton Thompson, and on the West Front of Peterborough by Geoffrey F. Webb.

EARLY ENGLISH MANUSCRIPTS IN FACSIMILE. Vol. I, THE THORKELIN TRANSCRIPTS OF BEOWULF, edited by Kemp Malone. Copenhagen: Rosenkilde and Bagger, 1951. Limited to 50 copies for Great Britain. 15 *guineas net*. [The two transcripts here reproduced in collotype facsimile were made for the Icelandic scholar G. J. Thorkelin in 1787, before the edges of the Cottonian manuscript, badly scorched in the fire of 1731, had begun to crumble away. They are therefore of the highest value for the textual study of Beowulf]. H.P.R.F.

THE ABBEY AND BISHOPRIC OF ELY, by EDWARD MILLER. Cambridge University Press. 25*s net*. 1951. [This first volume in the new series of Cambridge Studies in Medieval Life and Thought is sub-titled 'the Social History of an Ecclesiastical Estate from the 10th century to the early 14th century'. Mr Miller discusses the origins of the Ely estate, its organization before and after the Norman Conquest, the peasantry, feudal relations, jurisdiction, and administration. A learned and weighty contribution to our knowledge of the period]. H.P.R.F.

ANGLO-SAXON WRITS, by F. E. HARMER. Manchester University Press. 56*s. net*. 1952. [After an introduction of nearly 120 pages, dealing exhaustively with the evolution of this branch of diplomatics, Miss Harmer gives the text of all the extant Old English writs, with a translation and a full commentary. Her work is on the highest plane of scholarship. The volume will surely rank with those of Liebermann, Attenborough, Whitelock, and Robertson, as a classic source-book for the Old English period]. H.P.R.F.

Notes and News

THE ANTIQUITY OF BANGOR, CARNARVONSHIRE*

The 14th centenary of the founding of the see of Bangor was commemorated on June 12 last, in Bangor Cathedral. The celebration asserts the claim of the diocese and of its cathedral site to be the most ancient in Great Britain with an uninterrupted history ; for Bangor has been the bishop's seat in Gwynedd, western North Wales, since the reign of King Maelgwn (Gildas's Maglocunun), who died in 547.

All the dioceses of Roman Britain were engulfed in the Anglo-Saxon invasions. St. Ninian's see in Galloway finally vanished in the 8th century. The earliest see in Wales, that of St. Dubricius, which presumably included the whole of Wales, became three dioceses when he retired in 546. Its successors in Mid and South Wales either disappeared during the Celtic period, like Llanbadarn, or were transferred elsewhere, as St. Teilo's diocese was moved to Llandaff within the next 30 years. St. David's was founded later. The distinction of Bangor is that it claims to have succeeded to the portion of St. Dubricius's jurisdiction situated in North Wales and to have retained its status unaltered since 546.

Bangor was founded by St. Deiniol, the immediate successor in North Wales of St. Dubricius. It is from St. Dubricius that Wales derives its traditions in an unbroken line. As the kings of Gwynedd from 547 to 1282 ruled by virtue of their descent from King Maelgwn, so have the bishops of Gwynedd in Bangor exercised their episcopal rights by succession from St. Deiniol, Maelgwn's bishop. Here the past still casts its mantle over the present. Just as the diocese still bears the name of Bangor, so the rural deaneries are still called by the old territorial names, some of them older even than ' Bangor '. The old Celtic abbeys still serve as parish churches. The Welsh language still prevails and is in regular use in the churches, not only for the customary services but also for ordinations, confirmations, and other episcopal occasions, serving to emphasize the continuity of life that links the years 546 and 1952.

St. Deiniol was the son of Dunawd, whose father, Pabo, belonged to a North British reigning family that some generations later provided three kings celebrated as opponents of the earliest Bernician rulers. Pabo's name and generation place him among the allies who accompanied Cunedda, Maelgwn's great-grandfather, on his expedition into Wales about 460. That expedition ended in the expulsion of the Irish immigrants from all the regions between Rhyl and Cardigan, and as his share of the spoils of conquest Pabo received lands near St. Asaph and around Bangor and in Anglesey.

The Bangor founded by St. Deiniol was the earliest Bangor, the ' Bennchor Moer in Britannia ' of the Irish chronicles. From it St. Comgall's Bangor in Ireland and the Flintshire Bangor both took their name, which signifies the wattled enclosure surrounding the monastery precincts. It was, however, overshadowed by the greater fame of the Flintshire Bangor, Bede's Bancornaburg, the Bangor of the martyred monks of the Battle of Chester ; and this, together with the erroneous identification of Bede's Dinoot of 603 with Dunawd ap Pabo, St. Deiniol's father, created the belief that this Bangor was

* Reprinted from *The Times*, 31 May, p. 7, by permission of the Editor.

the earlier. The truth is that the Carnarvonshire Bangor was first founded as a monastery as early as about 520, the Irish Bangor about 558, and the Flintshire Bangor not before 547.

The principal difficulty in reconstructing Celtic church history in Wales is the lack of an exact chronology, such as Bede supplies for England. All that remains is the comparative evidence of epigraphy and dedications. Inscribed stones of the 5th and early 6th centuries are much more numerous west of the Conway than in Flintshire; Penmachno near Bettws-y-Coed possesses a Chi-Rho inscription and another stone bearing the name of Justin, Roman Consul for 540. The great Gwynedd church foundations of Towyn (Merioneth), its daughter monastery of Bardsey, and Holyhead and Penmon in Anglesey are all of Maelgwn's reign. St. Deiniol belonged to the same generation as the king, and Bangor served that part of Gwynedd not touched by the other great foundations, the heart of the kingdom.

The year 547 brought the Yellow Plague which carried off King Maelgwn and innumerable other victims. A flight to Brittany left South Wales almost deserted; but North Wales received an influx of refugees, vanquished in a civil war in North Britain, where also the Angles were now establishing themselves in Bernicia. The consequent alliance between Wales and these Northern Britons transferred the strategic centre of North Wales to Flintshire. The refugees, under the King of Rheged, St. Deiniol's cousin, acquired temporary homes in the Vale of Clwyd, where their bishop, St. Kentigern of Glasgow, founded his church at St. Asaph. New churches appeared in these regions bearing the names of the sons of the saints of Carnarvonshire and Anglesey—a sure indication of an eastward migration, which probably included St. Deiniol himself, to judge from his churches at both ends of Bala Lake and at Bangor-is-coed in Flintshire.

No details of St. Deiniol's life have been recorded, but from the pre-eminence of his two monasteries he must have been one of the young nobles who followed King Maelgwn to the monastic school of St. Illtud—Gildas's '*paene totius Britanniae magistrum elegantem*'—where he remained after the king's departure. Who ordained and consecrated him is likewise unknown, although a credible tradition attributes his consecration to St. Dubricius, when this saint was succeeded by three bishops simultaneously—by St. Deiniol in North Wales, St. Padarn in Mid Wales, and St. Teilo in South Wales. The *Annales Cambriae* states that St. Deiniol died in 584. But the dates given by that chronicle for the deaths of St. David and St. Kentigern are twelve years too late, and that for St. Deiniol's death may be equally inaccurate. If so, the correct date would be 572, and this would accord much better with the deaths of his contemporaries, Gildas and St. Cadoc.

It is exceedingly difficult to envisage a diocese in a Celtic church, a church with Gallican usages and ministering to a tribal pattern of society. The only parallel account is Bede's description of the Celtic mission in Northumbria and Mercia before Archbishop Theodore of Tarsus reorganized the Church of England on Roman lines in 672. Here diocese and kingdom were identical; there was no great mother church radiating influence and authority throughout the diocese; there was no archdeacon or diocesan executive. The secret of the bishop's authority lay in his reputation for holiness rather than in any official prestige. He had his episcopal status, but his personal worth counted for far more than any pride of place. Such, too, were the conditions in Wales, where a bishop's diocesan functions were principally those of ordaining the clergy and consecrating the holy oil for confirmation, which was, however, administered by the priests.

In 546 almost all Britain west of a line from Bournemouth to York was still unoccupied by the English, and we can infer from Gildas and the *Life of St. Samson* of Dol in Brittany that the ancient British church was still functioning adequately in the

western half of what is now England. The first bishop known in Wales, St. Dubricius, is recorded about 500 near Ross-on-Wye. Whence came the episcopal dignity to that remote region ? Analogy with the flight of the Archbishops of York to the fastnesses of the West Riding from the Danes suggests that the clergy of the Roman city of Gloucester must have similarly fled to Ariconium, 15 miles to the west. These clergy did not return, for the work developed westwards.

St. Dubricius is thus the connecting link between the ancient British church and the Celtic church in Wales. In his day the two churches were one in all their customs, usages, and traditions, and the identity remained even after the English had pressed westwards to Offa's Dyke and the authority of Canterbury had gathered the entire English nation into the Roman obedience. The church of the Welsh people was still the ancient British church and followed the ancient paths.

PUBLICATION OF OFFICIAL EXCAVATIONS

The policy of the Ministry of Works (Ancient Monuments Inspectorate) is to publish in established archaeological journals, national, county, etc., because for a century or more they have been the acknowledged means of publishing reports of excavations. It is in their pages that most archaeologists expect to find such reports, rather than in book-form, official or otherwise.

Reports on the following official excavations have been published during the past 13 years. Those published during the war contain no reference to the Ministry of Works or even to the fact that the excavation was officially sponsored and conducted. This was for reasons of security. Those published since the war normally mention the Ministry, but not very prominently, because the Ministry does not make a habit of blowing its own trumpet. It has sometimes been stated in the report that part of the cost of production has been borne by the Ministry.

I. Neolithic and Bronze Age

1. England

Berkshire. Barrow Hills Field, Radley. *Oxoniensia*, xiii, 1–17.
Cambridgeshire. Snailwell Barrows. *Proc. Cambs. Ant. Soc.*, xliii, 30–49.
Dorset. Crichel Down Barrows. *Archaeologia*, xc, 47–80.
Hampshire. Beaulieu Heath Barrows. *Proc. Prehist. Soc.*, ix, 1–27.
Hurn Barrows. *Proc. Hants. F.C.*, xv, 248–62.
Stoney Cross Barrows. *Proc. Prehist. Soc.*, ix, 1–27 (part).
Oxfordshire. Dorchester Henge Monuments. *Publ. Ashmolean Museum*, 1951.
Stanton Harcourt Circle and Barrows. *Oxoniensia*, viii–ix, 19–63 and x, 16–41.
Somerset. Charmy Down Barrows. *Ant. J.*, xxx, 34–46.
North Stoke Barrow. *Ant. J.*, xxx, 34–46.
Ston Easton Barrows. *Proc. Som. Arch. Soc.*, xciii, 39–67.
Yorkshire. Quernhow Barrow. *Ant. J.*, xxxi, 1–24.

2. Wales and Monmouthshire

Breconshire. Sennybridge Stone Circle and Barrow. *Arch. Camb.*, 1943, 169–94.
Glamorgan. Simondston and Pond Cairns, Bridgend. *Archaeologia*, lxxxvii, 129–80.
Fairwood Common Barrow. *Arch. Camb.*, 1944, 52–63.
Llandow Barrows. *Archaeologia*, lxxxix, 89–126; *Ant. J.*, xxi, 97–127; Antiquity, xv, 1941, 142–61.

MONMOUTHSHIRE. Crick Barrow. *Arch. Camb.*, 1940, 169–91.
PEMBROKESHIRE. Letterston Barrows. *Arch. Camb.*, 1948, 67–87.
Talbenny Barrow. *Arch. Journ.*, XCIX, 1–32.

3. SCOTLAND

AYRSHIRE. Monkton Urnfield. *Proc. Soc. Ant. Scot.*, LXXVIII, 131–4.

II. EARLY IRON AGE

1. ENGLAND

DORSET. Marnhull Settlement. *Proc. Dorset Arch. and N.H. Soc.*, LXXII, 20–75.
HERTFORDSHIRE. Park St. Belgic huts. *Arch. Journ.*, CII, 21–110 (part).
LEICESTERSHIRE. Bredon-on-the-Hill Camp. *Trans. Leics. Arch. Soc.*, XXVI, 17–82.
OXFORDSHIRE. Langford Downs Settlement. *Oxoniensia*, XI–XII, 44–64.
Linch Hill Settlement. *Oxoniensia*, VIII–IX, 19–63 (part).
WILTSHIRE. Boscombe Down West Settlement. *Wilts. Arch. Mag.*, LIV, 123–68.

2. WALES AND MONMOUTHSHIRE

CARDIGANSHIRE. Henllan Camp. *Arch. Camb.*, 1945, 226–40

III. ROMAN

1. ENGLAND

CUMBERLAND. Cardurnock Roman Fort. *C. and W. Trans.*, XLVII, 78–127.
DORSET. Marnhull Roman Settlement. *Proc. Dorset Arch. and N.H. Soc.*, LXXII, 20–75 (part).
HAMPSHIRE. Stoney Cross Roman Road. *Proc. Prehist. Soc.*, IX, 3.
HERTFORDSHIRE. Park St. Roman Villa. *Arch. Journ.*, CII, 21–110.
OXFORDSHIRE. Akeman St., Crawley. *Oxoniensia*, VII, 109–11.

2. SCOTLAND

CAITHNESS. Skitten Broch, Wick. *Proc. Soc. Ant. Scot.*, LXXXII, 124–45.

IV. DARK AGES

1. ENGLAND

BERKSHIRE. Greenham Common Linear Earthwork. *Arch. Journ.*, C, 177–86.
HAMPSHIRE. Beaulieu Heath Linear Earthwork. *Proc. Hants. F.C.*, XVI, 166–7.
Stoney Cross Linear Earthwork. *Proc. Hants. F.C.*, XVI, 166–7.

2. WALES AND MONMOUTHSHIRE

GLAMORGAN. Hirwaun Mounds. *Arch. Camb.*, 1942, 77–92.

V. MEDIEVAL AND LATER

1. ENGLAND

HERTFORDSHIRE. Nuthampstead Moat. *Ant. J.*, XXVI, 138–44.
KENT. Nash Court Mounds, Boughton. *Arch. Camb.*, LXIV, 35–8.

TERMINOLOGY IN EGYPTIAN PREHISTORY

We publish the following note by Professor Gordon Childe being in full agreement with the contents. EDITOR.

A commonly recognized terminology is obviously a precondition for advance in any science. In prehistoric archaeology it can indeed hardly be claimed that a rigorously scientific set of terms has been agreed upon, but in most of its branches sufficient agreement has been reached for authors and students to be able at least to understand one another. Even this measure of agreement seems not yet to have been finally achieved in Egyptian prehistory. Its foundations were laid by the Frenchman de Morgan and the Englishman Flinders Petrie, who first discovered the predynastic background of the Pharaonic monarchy, but it was Petrie and his school who really developed its study and published the decisive material—in English. At first the new material, derived for the most part from cemeteries in Upper Egypt, was termed simply Predynastic and subdivided into Early, Middle and Late.[1] By 1917 indeed it was apparent that the several assemblages that successively dominated Upper Egypt in the prehistoric period were more than mere stages in the development of a single culture,[2] but it was still practicable to speak of an Early or a Middle Predynastic culture, using the term in the dual sense of ' an assemblage of relics repeatedly associated together ' and of the period of time during which that assemblage characterized the record in Upper Egypt. Some authors, however, preferred to emphasize the contrasts rather than the continuity by speaking of First and Second (Predynastic) cultures.

With the discovery in 1926 of the Badarian culture, that was obviously earlier than ' Early Predynastic ', both systems became obsolete. Early Predynastic was no longer ' Early ' nor ' First '. Subsequently Austrian and Egyptian excavators brought to light at Merimde and Maadi in Lower Egypt prehistoric cultures that did not fit into the Upper Egyptian sequence. In this situation Petrie proposed a revision of terminology in accordance with the well established archaeological practice. He replaced the terms Early, Middle and Late Predynastic by appellations taken from the names of sites where the relevant assemblages were particularly well or alone represented, as at Tasa, Badari el Amrah, Gerzeh and Semaineh. Accordingly, Tasian, Badarian, Amratian, Gerzean and Semainian represented both recurrent assemblages of archaeological traits and the periods of time defined by their currency in Upper Egypt. The newly found cultures of Lower Egypt could then be given independent names, likewise derived from type sites—Merimdian and Maadian. But, the archaeological record being most complete in Upper Egypt, it was still useful to ask whether Maadi was Gerzean or Semainian in age, i.e., fell into that portion of the continuous Upper Egyptian sequence defined by a Gerzean or a Semainian assemblage.

As a result, the names Badarian, Amratian, Gerzean and Semainian have been generally accepted not only in Great Britain, but also in America, Austria[3], Egypt[4], etc. In the light of Miss Cantor's article, ' Gerzean or Semainian ? "[5] the last of Petrie's terms,

[1] So, e.g., Peet, *CAH.*, I (1924), 248.

[2] Petrie, *Prehistoric Egypt*, 1917.

[3] e.g., Menghin, *Weltgeschichte der Steinzeit*, Vienna, 1931.

[4] e.g., Amer and Menghin, *Excavations of the Egyptian University in the Neolithic Site at Maadi.* First Preliminary Report. (Season 1930–31). Faculty of Arts Publication No. 19. Cairo. 1932 ; and Huzayyin, *The Place of Egypt in Prehistory. A correlated study of climates and cultures in the Old World.* Cairo. 1941. Mémoires présentés à l'Institut d'Égypte. Tome 43.

[5] Kantor, ' The Final Phase of Predynastic Culture : Gerzean or Semainean (?)', *JNES.*, 3, 110.

should perhaps be dropped, but that will not impair the system, which is at once scientific, in strict harmony with archaeological practice as reaffirmed by the designations formally adopted for Mesopotamian prehistory by the Baghdad Conference in 1930, and, unlike the latter, euphonious. Only in Germany, where Egyptologists only late turned their attention to prehistoric remains, did they find it necessary in the interests of 'Germanic science' to adopt another system. In his *Grundzüge der ägyptischen Vorgeschichte*, published in 1927, Scharff still spoke of the *Erste* and *Zweite Kultur*. With the recognition of the Badarian, earlier than the '*Erste*,' and of the Merimdian, neither *Erste* nor *Zweite*, such terms became as meaningless as Early or Middle Predynastic. Scharff took a peculiarly illogical and characteristically German way out. Amratian and Gerzean became Nakada I and Nakada II, and were thus contrasted with Badarian and Merimdian.

Now doubtless both Amratian and Gerzean assemblages had first been recognized in the Naqada cemeteries and were well represented there. But surely this fact is itself a disqualification for a culture name, since it has never been archaeological practice to give contrasted assemblages names that have to be distinguished by numerals—numerals should be used to distinguish phases in the development of one and the same culture. Moreover, at Naqada the Gerzean culture is not found pure but blended with obvious survivals of the preceding Amratian. Scharff's terminology has nothing to recommend it, save its potential use as an instrument for the spread of Germanic culture.

But the next stage in that spread, the Nazi revolution, enriched Egyptology and other branches of learning in America and Britain with numerous refugees from Nazi tyranny. As mature scholars, such were naturally prejudiced in favour of the terminologies, however illogical, in which they had been brought up. But surely they should not attempt to impose these terms upon luckless English-speakers who have been more fortunate in their educational backgrounds.

I am not an Egyptologist and have no qualifications to speak of the internal merits of any system of names. But as a prehistorian interested in the development of human culture as a whole, I have legitimate grounds for asking that Egyptological literature published in English shall be written in terms which I and, what is much more important, my students can understand, and that students should not be unnecessarily distracted and confused by an illogical, unscientific, foreign terminology. One book thus germanised has already been published with a substantial subsidy from a British university, and more are expected. Much though we desire the collaboration of German colleagues, we must surely demand that their voluminous writings shall not make unintelligible to the rising generation, the English classics of Petrie, Brunton and Caton-Thompson—nor incapable of earning dollars in America.

V. GORDON CHILDE.

Reviews

CONCENTRIC CIRCLES AT LLWYN-DU BACH, PENYGROES, CAERNARVONSHIRE. *By* Dr Gerhard Bersu *and* W. E. Griffiths. *Archaeologia Cambrensis*, 1949, 173–206.

This excavation was undertaken by the Caernarvonshire Excavation Committee in 1947, under the direction of the authors. Attention was first called to habitation-sites of this kind by Messrs Hemp & Gresham in Antiquity (xviii, 1944, 183). They consist of a round central wall, the remains of the house, surrounded by two other walls (here called rings) disposed more or less concentrically. At Llwyn-du Bach the central house was approached by a pathway between two flanking walls joining the middle and outermost rings, where stood one, or two, wooden doors and probably also 'some wooden superstructure, such as a gate-tower'. The absence of any adjacent cultivation-plots and the presence of remains of radiating (ranche ?) walls shows that stockbreeding rather than agriculture was the main support of the inhabitants. The outer enclosure was probably for cattle.

The roof of the central house rested on timber supports placed asymmetrically in relation to the wall, but with its main axis aligned with the door; it was not therefore an aisled round house, but to be compared with some Iron Age C huts at Maiden Castle. No dateable finds were made, but the excavators concluded that it was probably built in post-Roman times. Pre-Roman influences could hardly have penetrated so deeply in the short time between their introduction and the coming of the Romans, and there were no Roman imports found, as elsewhere in this period.

The suggestion of a structure over the main entrance to the outer enclosure recalls those at Axum in Ethiopia over the walls round the modern houses and the churches. There is a passage between two short side-walls about 4 to 6 metres long, with a room above; the whole is built of stone. The central buildings are both round and rectangular, the round houses having aisles between the roof-supports and the outer wall, as have also the (round) churches. These buildings are described and planned in Band 3 of the Deutsche Aksum Expedition's report (1913) which is a valuable mine of information about primitive houses.

The report on the excavation of Llwyn-du Bach is a model of its kind and an example of what meticulously careful observation can extract from slight differences in soil, disposition of stones and negative evidence. One's only regret is that the best diggers seem doomed always to happen on the worst sites—and vice versa. By 'worst' is meant sites that deny them even that bare minimum of dateable finds that they have a right to expect, even in the potless Dark Age of a poor mountain land. Here the habitation-level of the house was eroded away by rain-scour in the short interval between its desertion and the growth of a protecting cover of turf, and was only inferred from the presence of its black soil in some holes. This, the existence of several layers in hearths and certain repair-work show that the house was occupied for some length of time.

The Cornish 'rounds' also consist of triple concentric enclosures, whose entrances are marked by a pair of large standing stones in the surrounding walls. The central enclosures are too big to have been single houses; but the plan seems to be here, too, associated with cattle-raising, the space between the middle and outer walls being used

for the animals. In Cornwall also are remains of long walls that can only be ranche-boundaries, the equivalent of these earthen bivallates that cover the chalk downs of Wessex and radiate from such habitation-centres as Sidbury and Quarley. This concentric system is, however, very widely distributed both in time and space, and is a natural adaptation of a pastoral people. The subject is touched on briefly in the article on Cornish walls (ANTIQUITY X, 1936, 162–74).

Mr Ralegh Radford contributes a most interesting note on the relation between the traditional historical accounts of early Welsh society and the archaeological evidence of this and other sites, which confirms them. O.G.S.C.

THE TECHNOLOGY OF A STONE AGE PEOPLE IN NEW GUINEA. *By* BEATRICE BLACKWOOD. Occasional Papers on Technology, 3. *The Pitt Rivers Museum, Oxford*, 1950. *pp.* 60, 19 *text figures*, 16 *plates*. *Price* 10*s* 6*d*.

STONE AGE CRAFTSMEN: STONE TOOLS AND CAMPING PLACES OF THE AUSTRALIAN ABORIGINES. *By* S. R. MITCHELL. *Tait Book Company, Melbourne*, 1949. *pp.* 211, 45 *figures*, 16 *plates*. *Price* £1 7*s* 6*d*.

OURSELVES WRIT STRANGE. *By* ALAN MARSHALL. *George Allen & Unwin, London*, 1950. *pp.* 321, 19 *plates*. *Price* 15*s*.

To the modern archaeologist trying to expand the scope of his subject from the 19th century ' collector's catalogue ' approach to one of wider human significance, it must sometimes seem that his anthropological colleague lays exasperatingly little emphasis on the industrial and economic bases of primitive society as opposed to such purely social abstractions as kinship systems, marriage customs and the like.

Since few today would care to rely on the material of comparative sociology of living peoples to reconstruct the course of human social evolution, it follows that the only hope of enlightenment is that offered by the fullest possible investigation of the surviving material culture of extinct societies. In this connection it is difficult to over-estimate the value of exact circumstantial observations on the technology of living primitive communities.

Indeed one would have thought that the links between prehistory and ethnography were so self-evident and of such wide significance that few opportunities would have been lost of combining the two approaches to the basic problems of human development.

Yet it is unfortunately a fact that nearly all recent primitive communities became extinct before even the most superficial observations were recorded which could be of real help to the prehistorian. What the prehistorian requires is not merely a vague statement that the inhabitants of such and such an area live mainly by hunting, or make use of the bow, but rather a precise account of the number of animals killed and in what manner, the tools employed, and the methods used in their manufacture. Quantitative data are particularly useful, and so are clear explanatory diagrams, and photographs of the processes in actual operation.

In all these respects the first work named above maintains a remarkably high standard and provides a most enlightening account of the industrial activities of a community that may be described as on the borderline between ' mesolithic ' and ' neolithic '.

While it does not of course follow that the same objects and processes were not turned to quite other uses and evolved in quite different ways in other areas, it can scarcely be denied that such a record is worth a hundred hypothetical material cultures evolved in the mind of a civilised prehistorian sitting in his armchair. Here at least is *one* way in which artifacts of the kind were *certainly* made and used. Particularly fascinating are

the photographs showing every stage in the shaping, grinding, and hafting of a stone adze, all the tools used being of wood, stone or bone. Another interesting passage deals with arrows. While their general form is strictly governed by function and custom, their size and decoration are very largely a matter merely of individual preference.

As a measure of the urgency of such investigations it may be noted that the technology of this particular community was altered fundamentally by the introduction of European products within two years of the date of the observations.

A further case in point is supplied by the second work under review, which is a careful and painstaking account of industrial remains from surface sites throughout the sub-continent of Australia. As a general survey of such remains it is likely to remain for long the standard work on the subject. The treatment is in the main purely archaeological, that is to say artifacts are classed in accordance with their shape or method of manufacture with few serious deductions as to how they may or may not have been used, and how many distinct tool-ideas they may really represent. The truth is that the observations that might so easily have enabled such deductions a generation ago, can now never be made. Despite the undoubted usefulness of this study to any future archaeologist working in Australia, it is sad to think of the brilliant contribution to stone-age archaeology in general that would have been offered by the systematic study of the stone tools of even a single community, if it had included such details as exact descriptions of the purposes served and the precise variation in form of the tools used for a specific task. But this is not the fault of the author who has been at pains to collect such scattered (and often ambiguous) information as the ethnographical literature affords. On the whole the numerous illustrations are adequate to their purpose, though the data required by any one wishing to reconstruct the full process of manufacture of the different tool types is not always clearly recorded.

The third book is of little direct relevance to prehistory, though it is perhaps the sort of work which it would be good for most prehistorians to read and ponder from time to time. It consists of a set of charming anecdotes told in a very informal style by a layman with no anthropological training who has travelled widely among the modern descendants of the aborigines in Northern Australia. The point which emerges most clearly is the essential humanity of these people, and the ease with which they can be approached if ordinary good manners are observed and a little common sense with regard to their particular customs. Good and bad, gifted and stupid individuals are to be expected in every society, but it is perhaps more surprising to learn that among the descendants of typical kangaroo and wallaby hunters, after a single generation, are some that can read our Shakespeare with understanding and keen enjoyment.

C. B. M. McBURNEY.

LE GISEMENT PALÉOLITHIQUE DE SIDI ZIN. *By* E. G. GOBERT, with a section on fauna *by* R. VAUFREY. Volume 1 of *Karthago*, Revue d'archéologie africaine, 1950. *Printed by Librairie Klincksieck*, 11 *rue de Lille*, *Paris* VII. *pp.* 51, 17 *figures*, 6 *plates*, quarto. *Price* not stated.

In this handsomely produced short monograph, Dr Gobert, well known to prehistorians as one of the leading authorities on the stone age of North Africa, provides an admirable account of the first important Lower Palaeolithic find from Algeria or Tunisia for over half a century. The site was discovered by Etienne Dumont in 1942 in the course of a geological survey, and yielded to Dr Gobert a fine series of palaeolithic tools *in situ* in four layers in calcareous tufa, and alluvium with an associated vertebrate fauna. The specimens are illustrated in a series of drawings from the incomparable pen of

E. Evrard, and are clearly described by the author in his usual systematic fashion with tables giving the frequencies of the various types in each layer. The photographs of the site are less informative, however, and not well reproduced, though in any case the geological evidence fails to afford any real clue as to the date in the local succession, or the climate, at any rate until further work has been done in the area.

The industries from the three lowest layers are all characterised by large numbers of superbly finished oval and lanceolate hand axes, in hard limestone, together with a smaller number of smaller and rougher flake tools such as points and side-scrapers in flint and quartzite. These are described by Dr Gobert as ' Micoquian ' and compared to the similarly classified industries from Mount Carmel. To the author of this review the propriety of using the ill-dated site in the Dordogne as the representative of a widespread stage throughout the Mediterranean basin, has long seemed doubtful, and there would appear to be much in favour of describing both the Sidi Zin and the Mount Carmel series merely as Late or Evolved Acheulean. The main point in both cases is simply the occurrence of highly finished hand-axes with a flake industry from which true Levalloisian or Mousteroid flaking techniques are virtually absent. It may be recalled that the same is not true of Kharga where a gradual transformation of Acheulean into Levalloisian can be detected.

The final series at Sidi Zin consists merely of a relatively small series of flake tools of the same types as the preceding layers.

The fauna is of interest as being the first extensive collection from Northern Africa to be satisfactorily associated with hand-axes, since neither of the well-known collections from Lake Karar or Palikao can be regarded as above criticism in this respect. It is interesting that the assemblage is on the whole of a rather markedly African aspect including the South African variety *Equus Kuhni* and *Connochoetes cf. taurinus*—the blue Gnu of eastern and central Africa. The same observation was made many years ago by the late Professor Boule in his study of the Lake Karar collection, though at Sidi Zin it may be noted are also some traces of the Eurasiatic species *Bos Primigenius* destined to become a dominant form in the subsequent Middle Palaeolithic phase.

C. B. M. McBurney.

ART OF THE NORTH-WEST COAST INDIANS. *By* R. B. Inverarity. *University of California Press*, 1951. (Agents—Cambridge University Press). *pp.* 243, 279 *plates* (5 *in colour*), 1 *map*. £3 15*s* 0*d*.

That portion of the north-west coast of America corresponding roughly to the western seaboard of present-day Canada offers a relatively uniform and highly characteristic environment for human occupation. For a distance of nearly a thousand miles the shore presents a complicated pattern of deep inlets and innumerable off-lying islands. Throughout this zone the climate is temperate and moist giving rise to intense development of coniferous forests and plant life generally. Both are exceptionally suitable for food, clothing and many kinds of industrial activity, while the sea provides animal food in great variety and abundance.

Little documentary evidence is available concerning this area before the 18th century when it was the scene of a flourishing culture of hunting and gathering communities whose social, intellectual, and artistic attainments far surpass those of any other society living by these means known to anthropology.

The only domestic animal was the dog, and cultivation of a few herbs of very minor economic importance the only form of agriculture. The art of food preservation on

the other hand was carried to a high degree of development, and certainly must have been an important contributing factor in rendering possible the other forms of cultural activity.

As with most of the more advanced new world cultures the plastic arts played an outstanding part in the life of the people. Elaborate decoration was lavished on houses, graves, boats, clothes and a wide variety of other objects of every-day use, giving rise to a highly characteristic style which seems to have been fully evolved at the time of the earliest European visitors to the area, and to have survived with little change up to the virtual extinction of the culture at the beginning of this century.

The object of the book under review has been to bring together a corpus of outstanding examples of this art, mainly in American public and private collections and hitherto unpublished. From the 260 odd specimens shown, a fair impression of the range and applications of this art may be gathered. Apart from a few pieces showing evident incorporation of European motifs, few if any can be dated on stylistic grounds, though probably none of the examples shown are older than about 200 years. Practically nothing is yet known from archaeological sources of the origins of the tradition. Broadly speaking, though highly individual, it is not without suggestive analogies with other New World styles practised far to the South in Central and Southern America, and the even more remote traditions of Oceania and even New Zealand; it is an art of complicated designs, generally with a well defined symbolical meaning, and often highly decorative in effect, though far removed from natural appearances, and displaying practically no interest in representational or sensual appeal. In all these respects it is closely parallel say to the art of the ancient Maya, though representing an appreciably higher level of achievement than the art of the Aztec or the Tiahuanaco culture of the Andes. Again for the same reasons it is in striking contrast to the art, say, of the last few centuries in Europe, West Africa, or Medieval India, which all show a concentration on natural impressions either through representation or exaggeration wholly foreign to the North-west Indians. Perhaps the nearest Old World analogy is that of the early Chinese bronzes, and it is interesting to recall that some authorities have sought to trace an actual connection between the two.

It must be admitted however that the whole of this fascinating subject is as yet completely shrouded in mystery and a collection like that offered in this book serves merely to whet the curiosity, and to emphasize once again the extraordinary diversity of human taste, and the futility of regarding any one school or type of art as the standard of aesthetic evolution.

The illustrations are on the whole of a fairly high quality; but the style of book production will strike most European readers as unnecessarily florid, and more like that of a department store catalogue than a work of learning. The titles are not very illuminating, though some background on the social side is provided by a few pages of introductory text. A useful bibliography is included and the whereabouts of all the objects are given.

C. B. M. McBURNEY.

HORTFUNDE SÜDOSTEUROPAS [Bronze hoards of S.E. Europe], *von* FRIEDRICH HOLSTE: [50 *plates with museum-notes made by the author, published by the Prehistoric Seminar of Philipp's University, Marburg-Lahn*, 1951. *Price*, DM. 20].

Professor Merhart contributes a Foreword to this posthumous publication of the results of one of the author's tours round the museums of Central and Southern Europe. The multigraphed text consists simply of descriptions of the plates and objects. The plates contain line-drawings of the contents of the various hoards, and are adequate for their purpose. A tabular arrangement, however, giving the plate-reference first, would

have facilitated use, for one works from the plate to the text (not *vice versa*) ; and if one is doubtful what the drawing represents—and that is why one usually consults the text—it often takes some time to find the author's opinion. Apart from this defect the publication is excellent, scholarly, and useful. One wishes that more such could be produced for other regions, such as France and Britain. For these hoards are one of the chief sources of our knowledge of the Bronze Age, and they have not yet been made to contribute as much information as they might. It was largely by a study of the contents of hoards that Sir John Evans laid the foundations of the relative chronology of the British Bronze Age. That achievement, based on a single line of evidence was a *tour-de-force*; but the fact that, on the whole, it has stood the test of time so well proves that it was worth doing, and suggests that similar attempts, more broadly based, would give good results. This publication provides some of the material for such.

A casual glance at the drawings suggests possible lines of evolution of some of the objects. A sequence starting with Plate 3 (18), a flat axe with flanges, seems to develop through Plate 3 (17, 19, 13) to a socketed axe, Plate 1 (14, 15) and Plate 10 (6, 5, 4), and perhaps to other types also. Plate 3 (18) looks like the ancestor of the Swiss and French winged axe ; it is found also in Italy, but its home may well be north or east of the Alps. The Iron Age type fibula, Plate 10 (10), seems to be derived from a pin (like Plate 10, 1 and Plate 16, 36) whose flat head became the catch-plate. The hump-backed knives, Plates 2 (2), 9 (12), plainly developed through Plate 48 (40, 20) into the knobbed sickles, Plate 48 (20, 22), which are very common in the hoards here illustrated.

The objects described as pendants, Plate 11 (26) and 18 (7) are almost identical with those hanging from the rim of the wheeled cauldron from Skallerup, Zealand (Childe, Prehistoric Migrations, Oslo, 1950, fig. 163). These two pendants are from Bingula-Divos (Zagreb museum) and from Caransebes (Vršac museum), and both contain other objects that might have come from cauldrons, such as the wheel, Plate 18 (10), and some of the other pendants, one of which, Plate 11 (22) has a bird like the Skallerup cauldron. But of course these bird-chariots are known to extend far into southeastern Europe. We mention these resemblances chiefly because we believe that cauldron-fragments are to be found in hoards more often than has been thought, and when they can be recognised they form a useful chronological and cultural link. Some English hoards contained the ring-handles of cauldrons. O.G.S.C.

THE BIRTH OF CIVILIZATION IN THE NEAR EAST. *By* Henri Frankfort. 116 *pages*, 24 *plates*. *Williams & Norgate*, 1951. 16*s*.

The birth of civilization in the Near East was a unique event as much as the birth of the Moon from the bosom of the Earth. It may be considered ' as the birth of civilization in a general sense '. ' No appeal to foreign influence can explain the emergence of civilized societies in Egypt and Mesopotamia since these lands were the first to rise above a universal level of primitive existence ' (p. 15). Some readers of the Appendix on ' The influence of Mesopotamia on Egypt towards the end of the Fourth Millennium B.C.' may think that ' Egypt ' should be omitted from this sentence.

But the Egyptian and Sumerian civilizations were unique in another sense—in the sense that Henri Frankfort and Gordon Childe, or the Riss and Würm Ice Ages, are unique—and it is to vindicate this uniqueness that the author is principally concerned. His first chapter is entirely occupied with a criticism of Spengler and Toynbee for failing to recognize it. ' Generalizations,' he concludes, ' based on a limited historical experience, and theorizing, however ingeniously conducted, *must* [his italics] fail to disclose the individual character of any one civilization, (p. 31). But is it illegitimate,

ignoring the individuality of each, to try and recognize common characters, as Spengler and Toynbee do? The Commissioners of Inland Revenue, sociologists and anthropologists ignore the individual peculiarities of Frankfort and Childe and treat them as members of an income-group, a class, or a race; and the utility of their procedure is obvious enough in the first instance, at least to the Chancellor of the Exchequer. I should personally endorse most of the author's specific charges against Spengler and Toynbee, but the general indictment seems based on a misapprehension of their aims; for the phrase 'civilization in a general sense', quoted from the first page of Chapter 1, betrays an implicit acceptance of the underlying philosophy.

What Dr Frankfort sets out to describe is not the genesis of civilization but the births of two distinct civilizations; he is at pains to emphasize the individuality of each. Accordingly he gives a catalogue of differences between Egyptian and Sumerian civilizations which could easily be enlarged. Of course the reader must be made to realize what a gulf divides a *pharaoh* from an *ensi* or even a *lugal*, how patent is the contrast between Egyptian and Sumerian art. But a book entitled *The Birth of Civilization*, even if two 's's' have been omitted from the title, might condescend to mention another contrast—that with any barbaric or savage art. We can recognize the difference in ideals and conventions inspiring Egyptian and Sumerian—and for that matter Indus, Minoan and Shang—portrait statues; but we know at once that each artist was trying in his own way to make what we should recognize as a *likeness* of a person. No illiterate or preliterate barbarian ever did or does attempt a likeness recognizable to us.

Within his self-imposed limits Dr Frankfort gives the best simple account of the prehistoric and early historic periods in the valleys of the Tigris–Euphrates and the Nile up to date. He manages to describe the salient features of the prehistoric phases without burdening the reader with technical archaeological details. In Mesopotamia the ugly terms Uruk and Jemdet Nasr are replaced by Early and Late Protoliterate, while in Egypt the familiar and euphonious English terminology (but omitting Semainian) is maintained in spite of German efforts to impose an illogical Naqada I and Naqada II. The account of early Sumerian social organization is firmly based on Diemel and Schneider, with the addition of Jacobsen's somewhat speculative reconstruction of 'primitive democracy' in a still earlier 'protoliterate' stage. Well chosen extracts from autobiographies chiselled on tomb walls happily illustrate the ideals of the Egyptian bureaucracy. But though the antecedents are admirably sketched and the childhood is finely portrayed, we seem to miss the birth—what I call the Urban Revolution. Frankfort objects to my term the Urban Revolution, firstly (p. 83) because in Egypt (a) cities 'with the single exception of the capital, were no more than market towns for the countryside'. and (b) 'until the middle of the second millennium B.C., there was no truly permanent capital in Egypt'; (c) 'each pharaoh took up residence near the site chosen for his tomb'. Even Memphis, traditionally founded by Menes at the unification of Egypt, was (d) 'originally—and remained for fifteen hundred years—almost exclusively a sacred city' (p. 81). He omits even to mention Emery's claim to have found at Saqqara, the necropolis of Memphis, tombs of two kings and a queen of the First Dynasty (footnote 1 on p. 81, mentioning only 'high officials of the kings of the First Dynasty' is somewhat disingenuous). If accepted, as I believe it generally is, it means that Memphis was a capital in the sense of paragraph (c) above for a couple of centuries. In any case all the kings of Dynasties I and II had admitted tombs at Abydos which, according to the same paragraph, would have been a 'capital' for 250 years. After all Agade and Ur were capitals of Mesopotamia for no longer. But it remains true and significant that the 'county' (*nome*) was the rallying-point of local patriotism, as in feudal Britain, while in

Mesopotamia, as in the Mediterranean, it was the city. Hence opposition to the pharaohs' authority was led by ' counts ' and not ' Lords Mayor '.

Secondly, though in Mesopotamia cities are admitted, Eshnunna or Kish were not very like Birmingham or Detroit. Most of the citizens, like classical Athenians, or medieval European burghers, farmed land in the city territory. Frankfort goes on to assert that ' every citizen whether priest, merchant, or craftsman, was a practical farmer who worked his allotment to support himself and his dependents ' (p. 63). For, he reminds us, in the Sumerian temple-city, most of those who appear as recipients of wages (rations) from the temple stores—including priests, merchants, and smiths—also held allotments on the temple lands. Now the minimum recorded allotment is 7/8th of an acre ' which would suffice to keep a man '. But we read of a *nubanda* who held 120 acres and another official held some 80 (p. 61). Did the *nubanda* really cultivate 120 acres with his own hands ? Is it not more likely that it was worked for him by some of the small holders ? But, if so, was not the smith's allotment likewise cultivated for him in some like manner so that he actually spent all his time at his craft, but could rely on a guaranteed basic income in addition to his wages ?

Dr Frankfort does not consider this possibility. For him, early Sumerian priests, merchants and craftsmen were part-time specialists and he cites examples from English villages and barbarian tribes of specialist craftsmen who are still primarily farmers. He might have gone on to quote master craftsmen in Tierra del Fuego who specialize in making arrowheads in the intervals of hunting and fishing. All would be equally irrelevant. For Frankfort ignores the useful distinction drawn by C. S. Coon between ' part-time ' and ' full-time specialists '. My ' Urban Revolution ' is just what made full-time specialization possible, i.e., relieved some men of the urgent task of growing or catching their own food that they might devote their full time to that ' intellectual adventure ' of speculative thought which Frankfort has described so brilliantly in *Before Philosophy*, or to the practice of the crafts. In Egypt, Frankfort does not attempt to deny that the scribes, metal-wrokers, weavers and others, described in detail in *The Praise of Writing* and other texts and figured on Old, as well as New, Kingdom tomb walls, were full-time professionals.

Such of course were a small minority in Egypt and Mesopotamia. But they did live on the ' surplus ' food produced by the peasantry and concentrated by the State or the temple. After all Frankfort and I have time to write books and reviews, just because Polish peasants, Canadian farmers and Orcadian crofters produce more eggs and wheat and milk than they consume. That truth was more evident in the childhood of civilization than today. Indeed the extraction and concentration of the surplus was the Urban Revolution.

V. Gordon Childe.

TROY, VOL. II : The Third, Fourth and Fifth Settlements, by Carl W. Blegen, John L. Caskey, Marion Rawson. *Part I*, xxii, 326 *pages* ; *Part II*, 315 *figs*.

Schliemann and Dörpfeld left even less of Troy III–V than of Troy II. And in any case these settlements never seemed very exciting after Schliemann had agreed to identify ' the Burnt City ' with II. (Schaeffer's attempt to restore III to that status is on p. 4 dismissed in a footnote as ' an academic study based on an eclectic scrutiny of all published reports and plans, including our own preliminary accounts, but untrammelled by a corresponding examination of the ruins on the site '. But Volume II has no more to say than Volume I about the massive brick rampart that Schaeffer rediscovered in the literature). Yet their poor remains are described and illustrated as lavishly as those of Troy I and II, and rightly so ; for instance, only the photograph in Fig. 79 shows that a

' Face-lid ' of III is more like the celebrated Vinča specimens than the familiar types. The Cincinnati Expedition has at least shown that Towns III–V were not miserable villages as Dörpfeld had alleged. Nor were they short-lived ; periods of reconstruction can be distinguished within the life of each. But continuity with Troy II was preserved throughout. Even in pottery few new types emerged as ' innovations '. The wheel was of course in use in all towns, but its mass production was surprisingly slow in ousting the old domestic industry ; in IV ' the potters seem to have made more general use of the wheel than their predecessors, for hand-made vases are relatively less numerous than heretofore ', while in V ' many pots seem to have been produced by hand but the great majority were now thrown on the wheel '. Domed ovens came into use in IV but in V we meet a more elaborate version with separate fuel-chamber. On the other hand, in III and IV the proportion of game bones was unusually high, and only in V do cow and pig appear again as the commonest food animals.

Though grey wares are frequently mentioned, these are not represented as precursors of the Minyan, characteristic of VI, nor do the authors indicate any other traits foreshadowing the new culture that dominated that town. On the contrary, ' Troy V was overwhelmed in the same movement of peoples that ushered in the Middle Bronze Age of Greece '. For the date of that event, apart from parallelism with the Cyclades and Helladic Greece, the best clues are provided by numerous close agreements between the pottery of Troy V and that from the level at Gözlu Kale (Tarsus) that yielded imprints of Cappadocian seals. Dr Goldman's dating as ' not later than the 20th century B.C.' is quoted as given in 1940. After the publication of *Alalakh and Chronology* she would doubtless have written instead ' not earlier than the 20th century '. Everyone will await with excitement the promised volume III, if only to see how Troy VI is to fill even five centuries (1850–1350 ?).

V. Gordon Childe.

JORDFORDELING OG UDSKIFNING. *By* C. Rise Hansen *and* Axel Steensberg. *pp.* 485 *with* 16 *folding maps and* 54 *figures in text. Copenhagen*, 1951. *No price stated.*

This study is concerned with the open field villages of Southwest Zealand at the end of the 17th century. As has so often happened, the fiscal needs of the Crown at a point in the past have proved the historian's blessing. The royal survey of 1681–3 resulted in more than 1800 Register books giving the areas of the strips, the optimum crop, the quality of the soil and the length of the rotation-period through which cropping moved. Meadow and pasture were not surveyed by area but by assessed yield in hay or by capacity to maintain animals. Woodland was assessed by mast, as the English Domesday surveyors assessed land *de x porcis*. Indeed it is with Domesday that the English reader compares this Danish undertaking, with regrets that nothing on such a scale of thoroughness was undertaken by the Stuarts. It is true that we have the Surveys of Crown Lands, the Surveys of some private estates (particularly those of Oxford and Cambridge Colleges) and the terriers of the glebe land. But these comprised only either one holding in a village or one village in a district.

The authors set themselves the task of reconstructing maps from the evidence of the 1681–3 Survey, aided by original maps of the enclosure period *c.* 1770. There are three such maps in the text, which also reproduces the 18th century maps of the same villages for comparison.

The first section of the book (pp. 1–126) describes the source material and the technique of the surveyors. After a short account of the 1770 maps, there follows a comparison of the villages of Hejninge, Grøfte and Snekkerup at this interval of a

century. In the first village there were sixteen farms : but a village tradition of an original eight-farm settlement, and a doubling of tenements at some point in the Middle Ages when the village's cultivated area had been expanded. The number sixteen cast its shadow over all the life in the fields. Indeed the connection between the number of tenements and the same number of shares in the open fields is underlined by the fact that a seventeenth holding, the Rectory, a latecomer, had its land outside the common fields in a compact block. The fields were clearly the prize of those who had participated in the original work of clearing and in the subsequent centuries of assarting. There were three Fields, one fallow each year, not exactly equal in area (168, 138 and 120 ha.). There were 35, 41 and 31 bundles of strips (Aas : *anglice* furlong or shot) in these Fields. Many furlongs had 16, or a multiple of 16, strips within them. There was no fixed order within the furlong for any individual's strips, thus suggesting a partition by lot after the first ploughing.

But the the twin halves of the original eight holdings still stood side by side within the furlong, being an original strip now divided into two. As in England, the area of furlongs and the size of strips varied. But between 75 per cent and 85 per cent of the strips had breadths between 9.5 and 19 metres and nearly 40 per cent between 12.5 and 16 metres. Of 1516 strips, more than half lay between 1000 and 3000 square metres.

In 1786 the village was still open, but an organisational change had taken place. *Egalisering*—equalisation—took place *c.* 1720 when the holdings of the farms were redistributed to iron out inequalities which had arisen between holdings despite the conceptual equality. Rents became equal and the tax assessments became equal. Another 13 per cent of newly cultivated land had been added to the arable and this made it possible to increase the size of the furlongs. The authors comment that this would indicate a loose marking of the old furlongs in the Fields and easily ploughed-out ridging in the strips. (Incidentally, when the surveyors of 1681 were searching for former arable land, the test they applied was the same as that applied by the Court of Exchequer in a Warwickshire tithe dispute : is it ridge and furrow ?). In 1786 the meadow was surveyed, not assessed, and it proved to lie partly in blocks (divided into sixteen), partly to be grass-growing strips, and partly to be the odd grassland of hollows, corners and slopes among the furlongs where the plough did not go.

In the second village the furlongs were more scattered over the parish, with wood and meadow intervening (rather as in Herefordshire). There was one enclosed field. About one sixth of the arable land was in fact out of cultivation altogether and woodland was encroaching, a situation which must have often occurred in English villages after some temporary setback, to be retrieved at the next burst of optimism or at the next increase of mouths to be fed or arms to wield the axe. The distribution of strips within the six-strip furlongs here followed the order of houses around the central village green : if your house was east of the miller's then you had the strip east of his. G. C. Homans pointed out the evidence for this *solskifte* regularity in some English strip lay-outs, and although his evidence has not been received into the canon of English teaching on the subject, there is plenty of evidence in deeds and terriers that English villagers were aware that their strips could be succinctly described as lying between those of the miller and the parson, whatever furlong they were in.

As in the first village, small tofts lay near the farmsteads : these were enclosed fields, and each house at Grøfte had part of the enclosed fields away from the heart of the settlement. The average strip was rather smaller than in the first village (10–12.5 metres). Some reallocation, by which you had a pair of adjacent strips, had taken place.

In 1768 Grøfte had acquired a fourth Field, cut off from its parent by a road, but it was predominantly a meadow area and the field-system was still triple. Some assarting had increased the size and number of the strips but there had been no *egalisering*.

The third village had five farms. There were again three Fields with considerable inequality (75, 59 and 40 ha.) But the biggest field had the poorest soil. The original holding was of two hides, and then a division took place into two and three parts respectively. This had complicated the regularity of the order of strips within the furlongs. Only about 20 per cent of all furlongs had five strips, the number in the other 80 per cent varying between 4 and 37. Here again, the majority of the strips had an area of 1000–3000 square metres. In this village a radical *egalisering* took place between the two surveys. The number of furlongs was increased from 75 to 137 by subdivision ; some of the boundaries of the three Fields were shifted. Only in one case did the longitudinal direction of strips in these furlongs change. The farms now held their strips in strict sequence through the furlong (Nos. 1, 2 . . . 5 in order) although No. 1 did not always hold the outermost strip.

From valuations at the two surveys and in 1844, maps have been drawn showing the four qualities of land as contemporaries valued them. There is general congruence between the results. In an Appendix by Werner Christensen, methodical analysis of soil samples are plotted across the maps of the three villages, and it is shown that the highest concentrations of $P_2 O_5$ follow the same pattern as the valuation maps. The core of land with the highest soluble phosphate was that near the village. This land, the first to be brought under cultivation, had made humus deep enough for the most exacting cereals, whatever the original quality of the land. Village refuse, human, animal and vegetable had added to its quality. The same improvement in quality by the very act of cultivation is shown by the more uniform quality of the 1844 valuation of land recently brought into cultivation. Men were still in the ' short-run ' of the economists' diagrams, when more and more attention to the soil was still giving increasing yields.

The final section of the book describes what in England would be termed the enclosure of the open fields. This English term is wide enough to embrace the Danish process. At Hejninge eight farms were accidentally burned in 1781 and they were rebuilt at the periphery of the village in pairs. The opportunity was taken to cut out block-shaped compact holdings for these farms, although such was the quality of the newer peripheral land that some land in the more fertile core of the Fields was still held in common by the re-built farms. At Grøfte, enclosure threw two of the farmsteads into the lord's estate and their lands were absorbed into the woodland, just as the houses of Stowe or Wimpole or Castle Howard were being absorbed into their parklands. Four other farms were given land radiating from the village in compact blocks. At Snekkerup, enclosure took place in 1794, again with blocks of land radiating from the village farmsteads. In Plates IX and X the whole district (Antvorskov) is examined to see what took place at enclosure. There were 62 villages, 32 of which were enclosed between 1793 and 1801 either by agreement or by administrative officers of the Government. Some had the new holdings radiating from the centre, others had new farms in the centre of their new holdings away from the old village, like the Waterloo Farms of the English Midlands.

Enclosure in Denmark was in progress in Tudor times although it did not gather pace until the latter half of the 18th century. Danish historians are fortunate in having so many extant open field maps. In England there are fewer maps and the pattern of holding which they exhibit is more complex. The land market among big and little peasant proprietors in the 15th century had produced a fluidity which makes it difficult

to see much of an original scheme in the scattered holdings of such an early open field map as that of Weston in Weedon (Northants) or in the Field Book of Castle Howard, both Elizabethan. The open fields were, as the Orwins showed, a practical answer to a practical farming problem: how to reward a village labour force for its work in clearing; and how to maintain the cleared land by communal effort. That problem was a European problem, and where our own records are dark we may, within limits, look for illumination across the Channel.

This book has all the quality of a good illuminator. Its maps are beautifully printed on a scale large enough to read. Its presentation of the matter is orderly, and it adds to English enlightenment by a 53-page summary of the book in English and by adding English captions to all the maps and plates. *O si sic omnes!* M. W. Beresford.

NOTES ON THE PREHISTORIC METALLURGY OF COPPER AND BRONZE IN THE OLD WORLD. *By* H. H. Coghlan, *Pitt-Rivers Museum, Oxford,* Occasional Papers on Technology, No. 4. 1951. 15*s*.

Metalworkers have undoubtedly been pioneers in discovering and applying fundamental facts and principles from which our sciences of geology, chemistry and even physics have sprung. But miners, smelters and smiths were illiterate in all societies before the classical Greek—and in many since. So the only way of finding out what chemistry or geology they knew is to find out what knowledge they used; that means what processes they consistently and successfully employed. Only a minute scrutiny of their products, their equipment and the refuse they have left by one with practical experience of the sort of operations involved can recover the outlines of this preliterate knowledge that yet lives implicitly in our systems of sciences. If only as a competent and illustrated compendium of studies already made in this direction Coghlan's book would rank as a solid contribution to the history of science as well as a convenient guide to professional archaeologists. But it is more than this. It includes metallographic analyses of a dozen ancient copper or bronze artifacts carried out by Dr Voce of the Copper Development Association that give illuminating information on the techniques employed and their makers' mastery of these. Coghlan's explanations render these valuable documents easily intelligible to readers who may be unfamiliar with technical terms and their implications. But the most original part of the book is the account of practical experiments by the author in conjunction with Dr Voce at reproducing procedures supposedly employed by prehistoric metal-workers. He has cast a shaft-hole axe of unalloyed copper in a closed mould, cut copper rods with stone chisels and made successful castings in a prehistoric bronze mould such as armchair antiquaries thought could be used only for making the wax models for *cire perdue* castings.

The book is completed by an extensive bibliography (from which Goetze's articles are curiously omitted) and helpful ethnographic notes by Mr Penniman.

Besides thus surveying the tools and techniques of preliterate craftsmen, Mr Coghlan attempts to reconstruct the steps by which this applied science was accumulated. Like other authorities, he assumes that native copper was known before copper smelted from ores and that oxidized ores (such as malachite) were smelted before sulphide ores that can only be reduced after a preliminary roasting in which the sulphur is burnt away as sulphur dioxide gas. The second assumption sounds likely both because oxidized ores can be reduced so much more simply by merely heating with charcoal and because they are often conspicuous by reason of their colours. It is not, however, true that 'sulphide ores are usually found at a very considerable depth below the surface' (p. 15). For example in the case of the Ergani mine on the Upper Tigris in Eastern Turkey which

was probably worked before local history began, a report just published states that ' there never was a zone of oxidization in this ore body ' which consists of copper pyrites (sulphide). So, the only ore body in Central Europe demonstrably mined in prehistoric times—that of the Austrian Alps—consists throughout of sulphide ore even to the outcrop. Of course the exploitation of these Alpine lodes need not have begun much before 1000 B.C., but the sulphur content of ' bronzes ' from Troy and other much earlier sites does suggest, whatever Coghlan says, that the treatment of sulphide ores had been fully mastered by the 3rd millennium in the Near East. It should be recalled that sulphur is not one of the ' impurities ' revealed by spectrographic (as against the older chemical) analyses and may therefore have been present more often and in larger quantities than recently published analyses (being mainly spectrographic) show.

As regards the development of techniques Coghlan proposes to distinguish four stages : A, the shaping of native copper by forging (hammering and annealing) only (i.e. the discovery that copper is malleable).

B, the production of simple castings in open moulds from native copper (the discovery that native copper is fusible).

C, the smelting of copper from ores and the use of composite moulds.

D, the transition to bronze and other alloys.

The first peculiarity of this classification is the important rôle it assigns to native copper. Previous writers have equated ' intelligent metallurgy ' with the recognition that copper is fusible as well as malleable and have been at least prepared to admit that this discovery may have coincided with the discovery of smelting. Unfortunately, while melted copper can be distinguished by metallographic examination from what is merely forged, the distinction of native from smelted copper is far less easy. A second peculiarity of Coghlan's classification might be designed to avoid this difficulty. For with stage B he introduces a second base of division—the form of the product as well as the origin of the material. So Sialk III is taken as a representative of ' stage B ' ; yet it yielded a shaft-hole adze that, as far as the method of manufacture is concerned, does not differ from the Early Sumerian types so familiar now from Kish, Ur, Lagash, etc. Now it is a fact that the Early Sumerian types of shaft-hole axes and adzes can perfectly well be cast in one-piece clay moulds like that for an axe-adze from Hissar III though curiously enough no one—not even Mr Coghlan—seems to have noticed this. Still these highly developed tools have always and rightly been taken as evidence for the advanced metallurgy of the Sumerians and were in many cases demonstrably made from alloys and therefore assignable to our author's ' stage D '. Moreover, Sialk III, 4 is not much, if at all, later than the temple hoard from Uruk-Warka (Erech) that comprised figures made from an alloy of copper and lead and other articles illustrating a complete mastery of abstruse metallurgical techniques such as cupellation. Hence without very accurate analyses, Sialk III does not constitute a very convincing case of ' stage B '. So in Gawra VIII, here with reserve assigned to ' stage A ', Tobler's volume, published only after the printing of this book, shows copper to have been more plentiful than appeared from the sources available to Coghlan. Gawra VIII is in fact slightly later than Sialk III and belongs to a time when the use of metal for large objects like vases and of alloys proclaims stage C or stage D only a little further down the Tigris. The Egyptian evidence is little better. The Badarian and Amratian copper objects are admittedly not products of intelligent metallurgy and therefore can illustrate ' stage A ' ; a single Gerzean axe-head from Armant is claimed as representing ' stage B ', but, as metallic silver and lead were probably then already known, it too might be made from copper smelted from Sinaitic ore. In fact it is only in the old Hungary that a period when native copper was intelligently cast

can be accepted as proven, but such a localized industry alone is not evidence for a general stage in metallurgical development equivalent to Coghlan's ' stage B '.

Indeed Coghlan himself, though he sometimes writes as if it had been established that the fusibility of copper had been discovered before the extraction of the metal from its ores, frankly admits that far more numerous and detailed chemical and metallographic analyses are needed to prove the existence of his ' stage B '. He therefore concludes with an eloquent appeal to museum curators to allow more specimens to be thus examined, explaining what valuable scientific results can be obtained without perceptible damage to the specimens. Dr Voce's analyses here reproduced admirably illustrate the point, but the appeal would have been more convincing had the figured specimens been photographed after the notches had been filled in—only a footnote assures sceptics that this has been successfully done.

Of course chemical analyses can provide other historical information no less significant. The impurities found in any smelted (as opposed to electrolytic) copper, help to locate the ores from which the metal has been extracted and can thus provide evidence for preliterate trade comparable to that derived with such striking results from the petrological examination of stone axes. Professor Pittioni of Vienna has discovered a supplemental use for such data—the determination of the chronological range of prehistoric mining. During the last twenty years, in conjunction with the mining engineers Preuschen and Zschocke, Pittioni has been investigating the prehistoric mines in the Austrian Alps. The exciting results of these investigations formed the subject of his lectures to the University of London in 1950, now published in the *Annual Report* of the Institute of Archaeology. Fascinating details have been recovered on the techniques and lives of the Alpine miners and even on the structure of the industry. But its duration was a little vague. Mining during the Late Bronze Age (E = Urnfield period) is indeed well established by pottery and pins from the tailings dumps. Copper slag used to temper Early Bronze Age sherds from valley settlements suggested smelting in that period too, but the settlements in question are so far removed from the mountain mining sites as to raise doubts whether the ore smelted in them were not derived from some other source, perhaps lumps collected from river gravels. On the other hand some sherds from the dumps were reminiscent of Hallstatt (C) forms and inspired Pittioni to ask whether exploitation did not continue into the First Iron Age. Having in the Alpine sites an ore of known chemical composition but a shortage of typologically significant relics, he looked for typologically dated objects made from his Alpine ores and publishes the results in Vol. V, No. 4 of the *Mitteilungen der prähistorischen Kommission der Akademie der Wissenschaften* in Vienna.*

He persuaded the enlightened directors of the Prehistoric Section of the Kulturhistorisches Museum, Vienna, and of the Hallstatt Museum to offer 75 distinctive artifacts from the famous cemetery for spectrographic examination. The analyses were carried out in 1947 by Dr H. Pesta who ten years previously had examined samples of ore from the Alpine mining sites.

An incidental but positive, if surprising, result is that, judged by the impurities, the objects hitherto accepted as imports from Italy seem to have been made from the same sort of metal (i.e. metal from the same kind of ores) as the admittedly Central European

* ' Spektralanalytische Untersuchungen von Bronzen aus Hallstatt, O.–Ö. Ein Beitrag zum Problem der Chronologie des urzeitlichen Kupferbergwesens in Österreich ' von Richard Pittioni unter Mitarbeit von Hans Pesta and ' Metallographische Untersuchungen an Bronzen aus Hallstatt, O.–Ö.', von Friedrich Morton, pp. 24, V plates, Vienna, 1949, Ös. 13.50.

Hallstatt types. This is true for instance of the celebrated pail cover from grave 696 decorated with embossed animal figures, though a technical and stylistic reconsideration of the lid leaves Pittioni still convinced that the pail is a Venetic product. Either East Alpine copper was exported to Este or the local smiths drew on some unidentified source of very similar ore.

In the rest of the Hallstatt bronzes the impurities detected—notably the presence of traces of nickel, and lead and more minute indications of arsenic and antimony—agree very well with those characteristic of East Alpine ores. An exception is constituted by traces of zinc in 40 per cent of the artifacts examined, an element of which no trace is found in the copper ores. Pittioni, however, suggests that this impurity may be derived from the tin which was alloyed with the copper. But, of course, this possibility draws attention to a difficulty in the determination of the sources of all alloys as against unalloyed copper. In any case until a larger range of ores have been examined for instance from Hungary and the Balkans, with negative results, it cannot be confidently inferred that the East Alpine lodes did in fact supply the copper for the Hallstatt bronzes. With this reservation the figures here published do enhance the probability that mining in the Eastern Alps did continue into the Hallstatt period. V. GORDON CHILDE.

FORSCHUNGEN AUF KRETA, 1942, ed. F. MATZ. *Berlin : de Gruyters*, 1951. *pp.* VIII+166, 122 *plates*. DM. 80.

During their occupation of Crete members of the German forces and other German archaeologists were able to carry out excavations at a number of points. The results of these excavations are now published in this large and generously illustrated volume. In a foreword the editor regrets that these war-time excavations had to be left unfinished, and also that circumstances did not permit the Greek Archaeological Service to take cognizance of them. The latter regret will be echoed by all those who, in Crete or elsewhere, have had the fruitful experience of co-operation with Greek colleagues. This said, it must be added that the work was carried out in accordance with the best traditions of German scholarship, and that this book forms an impressive record of work done in time of war. It is to the credit of these Germans that, in spite of their difficult position as members of the occupying forces, most of them established good relations with their Greek workmen. After the war I was told by one of these workmen the story of the excavation of a cave in which some arms had been hidden by the resistance movement, and the blind eye turned by the German excavator to the hasty attempts of his workmen to conceal the rifles : also of his reception at the neighbouring monastery, which had been able to offer him only lenten fare before this incident but, when he returned in the evening after it, had mysteriously found a roast kid and some old wine.

The main interest of these researches lies in the light thrown on the early history of Western Crete, about which, as a glance at Pendlebury's *Archaeology of Crete* and its maps will show, very little was known before the war. The excavation of the Kumarospelio cave in the Akroteri near Khania has produced the first neolithic settlement known in the western half of Crete. The surviving vases from the Late Minoan cemeteries of Kydonia and other finds from the city of Khania have been arranged by Jantzen in the Museum in the little mosque by the harbour, which was founded as part of the wartime operations here described. Their publication makes possible for the first time an archaeological commentary on the importance of the city of Kydonia.

The following periods, Protogeometric and Early Geometric, are represented by sherds from a sanctuary at Aptara (only a few of which could be illustrated). For those who prefer the fuller light of the classical period, there is an account of the large but

hitherto not much studied city of Aptara, and the report of the excavation of the Hadrianic Diktynnaion in the far west of the island.

The main excavations recorded in this book are those of a ' tholos ' and M.M. settlement at Apesokari in the Mesara, and a Palace at Monasteraki to the west of Mt Ida. Nearly half the book is occupied with Kirsten's account of his excavation at Monasteraki, and his valuable discussion of the history of settlement in Western Crete. The ' Palace ' of Monasteraki is so identified from its extent and in particular from the area covered by the magazines, with pithoi still in position. Only about a quarter of it was cleared, and yielded neither structure of architectural importance nor many attractive finds ; the most interesting are the pithoi with their sealings. Three building periods are distinguished, all falling within the M.M. period. The importance of the site is above all historical ; that here, for the first time in that half of Crete which lies west of Mt. Ida, a ' palatial ' centre has been found. The contemporary site at Apodoulou lower down the valley of the Platypotamos, excavated by Marinatos and further explored by Kirsten, should belong to this centre. The valley is a rich one and, though it now lies off the main roads, the lowest crossing of the island from south to north, except the Isthmus of Hierapetra far to the east, lies at its head. By this route, Kirsten holds, Minoan civilization spread from the Mesara to the north coast in the neighbourhood of Rethymnos ; and at least as early as M.M.I., not, as commonly held, much later. It is worth observing that Pendlebury had foretold that evidence of this expansion would come to light in this area (*Archaeology of Crete*, 281). There are other sites farther west where, as Kirsten says, it would be worth looking for palaces.

No L.M. remains were found at Monasteraki. After a gap the record of this region begins again on a new site, with the occupation in L.M. III of the lofty acropolis of Sybrita, which controls the passage of the watershed by the south-north route just mentioned. Soundings were made at a number of points within the area of the ancient Sybrita which illustrate the history of this, one of the most extensive cities of Crete. Its most flourishing periods, to judge from the finds, were the Hellenistic and Roman (3rd century A.D.).

These are the first excavations made by German scholars in Crete. They were conducted in not the happiest circumstances and are at many points incomplete. But they are well worth while both in positive results gained and in suggestive ideas which call for further research. T. J. DUNBABIN.

THE DEAD SEA MANUAL OF DISCIPLINE : translation and notes by W. H. BROWNLEE. (*American Schools of Oriental Research ; Supplementary Studies Nos.* 10–12). *Drawer* 93 *A, Yale Station, New Haven, Conn.* 1951. $2.00.

BIBLICAL INTERPRETATION AMONG THE SECTARIES OF THE DEAD SEA SCROLLS. *By* W. H. BROWNLEE. *The Biblical Archaeologist*, vol. XIV (*Sept.* 1951), 54–76.

Since the discovery of the Scrolls in 1950 we have all been eagerly awaiting the publication of some of the material. The first item at the head of this review is a first instalment, appearing under the editorial aegis of Professor Albright. His name and the author's are a sufficient guarantee of meticulous scholarship, and no more need therefore be said on that count. (The reference on the first page of the *Biblical Archaeologist* to the ' Bodleian Library at Cambridge ' is rather disconcerting to an Oxonian, but is doubtless merely a slip of the pen).

The Scrolls were probably deposited in the cave where they were found either in the 2nd or the early 1st century B.C. The Manual of Discipline is regarded as belonging

to a community known as Essenes, and to that sect of them which was allowed to marry. It contains the Rule of the Community, and is regarded by Professor Albright as ' unquestionably the most valuable of all the scrolls yet known from the standpoint of history '. That appraisal Professor Brownlee regards as ' justified, if one thinks not of historical data as events (of which there is almost no record in this scroll), but rather of religious data which illumine our understanding of pre-Christian Judaism, and which bring fresh light to bear upon the background and thought of the New Testament '. Thus regarded, the Manual reveals a community whose conduct was based upon the general observance of rules, combined with a hatred of deviationists (called the ' sons of darkness ') and of ' all the men of Belial's lot ' who are comprehensively ' cursed without compassion ' and ' damned in the gloom of eternal fire '. It is nowhere revealed what these unfortunate people have done to deserve such execration ; the language used throughout is obscure, consisting of platitudinous metaphors about the sons of light and darkness, righteousness and sin, truth and falsehood, cleanness and uncleanness, purity and impurity, without any attempt at defining what these things connote in action. One has the impression of a group of ' unco' guid ' who regarded all outside their ranks as damned. Such groups are a common phenomenon of human history. They usually take their stand upon the blind and literal interpretation of a Holy Book or collection of writings. To what extent this ' bibliolatry ' had developed is well brought out by Professor Brownlee's second article ; it had become a sort of game akin to cross-word problems and the breaking of codes, and was carried on without interruption in every ' cell ' throughout the whole 24 hours by an organization of ten men. Though seldom carried to such extremes, the worship of the written word is still one of the besetting sins of humanity.

Into this musty charnel-house the teachings of the Founder of Christianity must have swept like a hurricane. Though the Essenes regarded the Pharisees as bitter enemies, the denunciations of the Gospels suggest that they differed little from each other. How refreshing to read the Gospel of St. Matthew directly after reading this dreadful Manual ! There is a Hellenic clarity and concreteness in its message that contrasts with the fussy intolerance and inhumanity of the Manual as vividly as do the plays of Shakespeare with some dreary medieval disquisition. O.G.S.C.

NOTES AND QUERIES ON ANTHROPOLOGY : 6th edition, revised and rewritten by a Committee of the Royal Anthropological Institute of Great Britain and Ireland. *Routledge and Kegan Paul*, 1951. 28*s*.

The bulk of this book is devoted to social Anthropology and modern Material Culture, but Part IV is a brief and inadequate collection of notes on Field Antiquities. Some of them will be found useful by field workers ; others, such as the sentence : Metal has long been used : will not. Some are positively misleading, such as the advice not to expose to the air long-buried skeletons ' as they are apt to break up quickly '. The reverse is true ; exposure hardens them. There are Appendices on Photography, Cinematography, Collection and Packing, Preservation of Bones, and Paper Squeezes. The caution about the use of a dark cloth when focusing is surely otiose nowadays. The whole of this section and the Appendices need to be scrapped and rewritten by someone with a wide experience of modern archaeological field work. But even so it seems doubtful whether such a vast subject could be usefully dealt with in 26 pages. There is a useful book-list of 17 pages, including ' some periodicals ' ; of these only some have addresses given. Amongst the omissions is the address of the Royal Anthropological

Institute itself, which is responsible for the book. The address of ANTIQUITY is wrongly given as Gloucester. Attention to important details is what distinguishes useful and scholarly productions from others. O.G.S.C.

EGYPTIAN PREDYNASTIC POTTERY. Otago Museum Handbook, No. 1. 1950. 16 *pp. text, map and* 20 *plates.*

This handbook is planned to inaugurate a series describing collections in the Department of Ceramics at the Otago Museum and is written essentially for the benefit of the layman. The text is by Colonel Fred Waite, supported by half-tone illustrations by Dr D. W. Carmalt Jones, of the characteristic pottery forms of most of the Egyptian Predynastic cultures as exemplified by the Museum collections.

The book is divided into two parts, the first dealing with the different methods of making pottery by hand, and a brief sketch of Predynastic chronology. Petrie's sequence-dates are adopted, but other estimates of dating are given in Appendices I and III to show the by no means inconsiderable differences of opinion that still exist. It is to be hoped that C14 dating will do much to provide a firm chronology for the Predynastic.

The second part gives a brief description of the more important pottery forms found with the different Predynastic cultures commencing with the Fayum. The author seems to suggest that Maadi ' is a primitive rural version of the Fayum Culture ' whereas most Egyptologists would place this site after the Semainean and immediately before the First Dynasty. One might perhaps put forward the contention that a description of pottery forms alone does not give any very clear picture of Predynastic culture. Its pottery is not the thing of intrinsic beauty that Greek or Chinese pottery is, for example, and one would have liked to have seen the description of the pottery against a background of prehistoric predynastic civilisation as a whole. This is partly, though only partly compensated by the illustration of two figurines from Merimde.

The handbook will, however, be very useful as an introduction to Predynastic pottery; it is well produced, and the Otago Museum is to be congratulated on the inauguration of what promises to be a most useful Handbook series. J. DESMOND CLARK.

THE STORY OF PREHISTORIC CIVILISATIONS, by DOROTHY DAVISON. *Published by Watts & Co., London,* 1951. *Price,* 12*s* 6*d.* 266 *pp.,* 65 *black and white illustrations and* 20 *black and white drawings used as chapter headings. Two end paper maps.*

It is difficult to see the class of reader for whom Miss Davison intended her book. A book which is intended for the intelligent, enquiring amateur requires to clothe the bare bones of archaeological data so that they may, in the words of the author's preface, ' become the life and thought of real men and women '. This, however, on her own assertion, the author leaves her readers to do for themselves. In a book of this size (266 pp. 8vo), which treats of a subject so wide as the growth in the Near East and the spread into Europe of neolithic civilisation from the close of the Palaeolithic to the beginning of the period of the henges and the Bronze Age, there is no room for more than a concise summary of each culture or civilisation and the author leaves herself no space for making her subjects come to life. The intelligent amateur needs his interest awakening and stimulating if he is to pursue the subject at all.

The beginner in archaeology, though he be more serious than the amateur, requires more detail in the accounts of the various cultures than this book, limited by its small

size and the scope of its subject, is able to supply, and his knowledge is not yet sufficiently wide to enable summaries to be of much practical value. He needs a full meal not an iron ration. As a rule the specialist would turn to specialist works for any detailed information he might require, though this book gives useful outline notes on the Neolithic as a whole. Unfortunately the illustrations, with which the author has profusely supplied her book, would not be as much help to him there as they might. Miss Davison herself deplores the ' overcrowding ' and ' disregard of comparative size ' which have only ' been allowed most reluctantly, because it seemed necessary to draw the greatest possible number of articles in view of the dearth of illustrations in archaeological books and the extreme difficulty of gaining access to the journals which give original accounts of excavations '. It might have been of greater value to have omitted a few of the smaller illustrations, which because of their small size it is difficult to make accurate, in favour of a larger size for the more important ones particularly the maps. It is unfortunate too that in several cases the text to the illustrations is deficient.

While, therefore, the book may not be the ideal introduction to the Neolithic for the amateur, the serious student will find in it one great merit, which like its defects, springs from the wide scope of the work. He will find concisely summarised and in one volume all the main outlines of the Neolithic Civilisation of Europe.

J. Desmond Clark.

MAN THE TOOL MAKER, by K. P. Oakley. *Published by the British Museum, London.* 1949. *Price, 2s 6d.* 92 *pp.*, 41 *line illustrations*, 2 *plates*, 1 *table, select Bibliography and Index.*

The value of this handbook as an introduction to the study of prehistory cannot be over-stressed ; it is unquestionably the best that has been written in recent years. That is chiefly because the author never neglects the fact that the stone or bone which he is describing is an object made by Early Man, and never loses sight of ' Man ' as ' the Tool Maker ', among the wealth of typological and technological material which the book contains. Throughout the book, whether it be a description of Choukoutien bipolar technique or Levalloisian flaking methods we never lose sight of the all-important fact that these were the tools of man, made as a result of his capacity for logical, conceptual thinking. All too often books of this nature on prehistory have in the past tended to stress the typological differences of the various cultures of the Stone Age. *Man the Toolmaker* leads one to view the subject from the point of view that the differences are the result of traditional development coupled with man's inventiveness.

The handbook treats the subject from a world viewpoint and not merely from that of Western Europe. So often the prehistory of other parts of the world is, as it were, ' tacked on ' to a description of the European sequence ; but Dr Oakley has succeeded in treating of the subject in such a way that the picture obtained by the reader is not a rather restricted view but embraces the development of prehistoric cultures in most parts of the world knit into a whole.

The book follows the usual form in giving an account of the early controversies on the antiquity of man, methods of fracture of stone, the cultural succession and so forth ; but the tale is told so clearly that often controversial points are assimilated by the reader with the minimum of mental labour.

Dr Oakley regards all eoliths with the greatest suspicion and his treatment of this problem is excellent. His chapter on raw materials could be read with considerable benefit by many more advanced in the study of prehistory ; it brings out very well the

fact which we are apt to forget, that stone was only one of the many raw materials used by prehistoric man. The description of the making of stone implements is greatly assisted by illustrations of techniques and of the various fabricating tools, hammerstones, compressors, etc., which help to emphasize the importance of technique rather than typology.

The description of the Palaeolithic cultures incorporates the latest ideas on their origins and development and the expert will find much food for useful thought—for example as to the origins of the Levalloisian technique and cultures, or the use of the Stillbay bifaced point.

A particularly valuable chapter deals with the tools that are associated with the various types of fossil man. All too often these are dealt with separately or, as has happened in not a few of the African fossils, the human types have been described but not the industries.

The book concludes with a chapter on the attributes of ' Man ' the ' Toolmaker '. The reasons for culture change, primitive art styles and religion and man's control and mastery of his environment and food supply.

A useful glossary and chart showing the Palaeolithic culture traditions and their probable connections complete the book.

Mr Waterhouse's illustrations cannot be bettered and one must admire the care with which the subject matter has been chosen, to supplement so clearly the text ; particularly happy is the inclusion of reconstructions of haftings and the photographs of modern stone craftsmen in Australia.

This book provides an introduction to the study of prehistory that has not been bettered and will be of value not only to the amateur but to the expert also.

J. Desmond Clark.

MATMAR, THE BRITISH MUSEUM EXPEDITION TO MIDDLE EGYPT, 1929–31. *By* Guy Brunton, o.b.e. *Quaritch, London*, 1948. *Pages* v *and* 107 *and* 76 *plates. Price not stated.*

Death withheld his hand just long enough to enable Guy Brunton to see through the press his last excavation report, delayed some seventeen years by various causes, chief of which was the Second World War. Readers of Antiquity should be particularly gratified that the work of this expedition has not been lost but recorded in Brunton's usual meticulous way, and illustrated by Winifred Brunton's beautiful drawings. For it was an appeal circulated in Antiquity which brought a considerable measure of financial support to the expedition, the chief benefactor being Mr J. A. Roebling of New Jersey.

Matmar covers two seasons' work of exploration and excavation along the edge of the eastern desert north of that part of the Badari district of Middle Egypt which had been explored in 1928 and 1929 under the auspices of the British Museum and published under the title of *Mostagedda*. Its aim was to find more remains of the predynastic and earlier periods.

It left the Tasian culture still doubtful, and added little to our knowledge of the Badarian, although it found the best Badarian bowl yet known (an unusual one in that its rippling is vertical) and produced both a perforated shell fish-hook and a notched ivory one. From predynastic graves came one of the rare bowls with animals modelled in the round (in this case hippopotami and crocodiles) on the rim, that probably have an Asiatic inspiration, and the earliest heavy copper tool yet known, a fine axehead of S.D. 38–46 with a high nickel content.

There were as usual also finds from various historic periods. The Fourth to Tenth Dynasties and the Second Intermediate Period provide useful supplements to the Corpora of finds from those periods already compiled in Brunton's earlier reports *Qau and Badari* and *Mostagedda*. From the New Kingdom traces were found of temples built by Akhenaten and Rameses II, the latter in honour of Set, associated with which was a bone pit similar to those found at Qau where fossil bones as well as worked hippopotamus ivory had been interred, that animal being sacred to Set. And the discovery of an intact, though poor, cemetery dating roughly from 950 to 650 B.C. provided a large series of beads and amulets, and especially scarabs and plaques, belonging to the 22nd to 26th dynasties, a period not hitherto closely defined.

Matmar closes the account of the work of a great Egyptologist, except for a study of button seals, and it is greatly to be hoped that the material that he left for that will find an editor.

For the thoroughness with which he carried out his master's principles of making the smaller objects in Egyptian archaeology provide the dates on which the reconstruction of prehistory and history are based, Brunton should be recognized as Petrie's greatest pupil. Not only did he extend our knowledge of the Predynastic backward by describing the Badarian period, but his development of the Corpus system which Petrie invented has provided a body of information about the pots, stone vases, beads, amulets, scarabs, etc., of the historic periods which, although it may be added to, will never be replaced.

A. J. Arkell.

SAALBURG JAHRBUCH X, 1951. *Edited by* Hans Schönberger. *Walter de Gruyter and Co., Berlin.* 80 *pp.*, 5 *plates and* 2 *large plans. Price not stated.*

The reappearance of the Saalburg Jahrbuch, after an interval of twelve years, is to be welcomed most warmly. The quality of paper, illustrations—and contents too—is well up to the old standards, though one misses the convenient binding in boards. In a brief introductory note, the editor announces a widening in scope ; in future the series will contain papers relating to Roman provincial archaeology and frontier studies, on prehistory and Dark Age archaeology generally, besides continuing to report on work in those fields within the area served by the Saalburg Museum itself. Next comes an obituary of Heinrich Jacobi, who died in 1946 in his eightieth year, first the helper and then the successor of his father, Louis Jacobi, in the creation of that splendid museum, whose journal he founded in 1911 ; a bibliography of his writings, from 1893 onwards, is appended. There follow half a dozen papers : Josef Baas discusses the different kinds of fruit eaten in Roman times at the Saalburg, identifiable by their stones, and gives a useful bibliography of French, German, Swedish and Swiss studies in the same field ; Heinrich Bingemer studies a rectangular earthwork near Ohrenbach, in the hills west of Miltenberg, and makes out a case for Roman origin, yet to be tested by the spade ; Wolfgang Dehn gives an essay, in honour of Emil Krüger's eightieth birthday, on the Gallic *oppida* as described by Caesar and other writers (this might have been more at home in a periodical devoted to history rather than to archaeology, but it will undoubtedly contain much of interest to the archaeologist) ; Werner Jorns reports on the excavations at Zugmantel in 1935, and Hans Schönberger surveys the whole series of excavations at that important site, up to 1950. A very large folding inset gives on one side a plan of Zugmantel forts and external settlement, on the other a plan to a still larger scale of one small portion of the latter, excavated in 1935–6 and 1949–50 ; particular interest attaches to the increasing evidence that the cellars there, and in the similar settlement at the Saalburg,

belonged to long, rectangular buildings whose gable ends fronted on to the main roads, as in the case of Housesteads on Hadrian's Wall or at Corbridge, though the British examples have not yet been found to include such cellars. Finally, Helmut Schoppa contributes a paper on some Roman wells found in Cologne. Altogether, it is a very interesting mixture, and we shall look forward with great interest to further issues in the series, which it is hoped to make an annual one. ERIC BIRLEY.

ETRUSCAN VASE-PAINTING. *By* J. D. BEAZLEY. *4to, pp.* XVI, 351, *with* 40 *plates. Oxford: at the Clarendon Press.* 1947. *84s net.*

In this handsome volume Sir J. D. Beazley inaugurates a new series of Oxford Monographs on Classical Archaeology of which he and Dr Paul Jacobsthal will be the general editors. Since the advance of scholarship banished the term 'Etruscan', once applied to Greek painted vases in general, from the place which it had usurped, the actual Etruscan vases, of which there are many, have been somewhat neglected, and this work by the acknowledged master in the field of Greek vase-painting is the first comprehensive study of them. With minor exceptions, such as the earliest products of Etruscan or Italic vase-painting of the 8th or 7th centuries B.C., all types of decorated vases are studied. Rather more space is devoted to red-figured than to black-figured ware, which has received more attention elsewhere, but special care is given to black-glaze vases, which form a large proportion of the finds on Etruscan and early Latin sites. Other types included are vases with superposed colour, those with patterns only, and silvered vases. The book, with its documented descriptions of the vases and their assignment to their places of origin, or even, within limits, to individual painters, is a mine of information to the specialist, but also has a strong appeal to a wider public. Students of Greek and of the fine Arts will find much to delight them in the detailed examination of the subject matter of the pictures and their style. The author's incomparable knowledge of Greek vases enables him frequently to identify the Greek types which inspired the work of the Etruscan artist, and with a subtle sensitiveness to style he reveals, often in a masterly phrase, the elements in the Etruscan work which are characteristic and original, although the general conception may be derivative. Thus of a cup from Vulci, figured in Pl. XII, of which the interior is decorated by a winged figure (Zetun), carrying off a woman (Phuipa), with a general resemblance to extant Greek designs with Eros similarly portrayed, Professor Beazley remarks: 'Here again we notice the sense of effort, as if the winged one were trudging with his burden through heavy soil, and this sense is increased by the clogging garment, the blown hair, the starting eyeballs, and the open panting mouth. If this is Greek it is Greek spoken with a strong accent'.

With similar discernment Professor Beazley recognises in a scene from the adventures of the Argonauts, depicted on a stamnos in Boston, the hand that rendered a 'Zeus and Ganymede' picture on a similar vase at Oxford. There is a justifiable note of triumph in his words, when he says: 'Ever since this vase came to Oxford, nearly thirty years ago, I have wanted to find another work by the same master: and here is one'.

Of the decoration of a stamnos in the British Museum he writes: 'On the other side a rider; Eros bringing him a wreath and sash in token of victory, and another Lasa (an Etruscan goddess or daimon, with wings) sitting on the ground, smelling a flower and not heeding the others. These pictures remind one of a pagan scene by some very humble Italian painter of the 15th century: something between a vision and a Valentine'.

Professor Beazley's introductory chapter is full of apt descriptions that show a fine appreciation of the nuances of style and subject matter. In a portrayal of the sack of

Troy on a calyx-krater in the Villa Giulia, ' Helen, in a himation only, trips away mincingly, with much white showing, and a perfect air of injured innocence '. Of the remarkable cup by the Settecamini painter in the Cabinet des Médailles, with a unique subject, Pasiphae, nursing the infant Minotaur, he says : ' The delightful little fellow has passed his hand round his mother's waist, between the two garments, where it is warm. Several episodes from the story are represented in antiquity. Etruscan cinerary urns of the Hellenistic period show Minos when he first sets eyes on the infant—a tense moment. In Euripides' play we hear him raging, and hear Pasiphae's tremendous defence. Then there is silence : but after all the Minotaur survives. Someone gave him a beautiful name Asterios ; and someone must have reared him : why not his mother ? Here is a port-hole view, as it were, of an otherwise obscure period in the life of one, whom some at least of my readers would probably describe as their favourite character in fiction '.

In addition to well known vases, such as the attractive one in the Villa Giulia with a war-elephant, surmounted by a tower and followed by a baby elephant, which has been associated with the campaigns of Pyrrhus, the plates contain much unpublished material. The illustrations and detailed descriptions embrace the whole range of subjects found in Etruscan vase-painting, daemons, monsters, funerary, mythological and battle scenes, and throw some light on the thought and culture of that somewhat mysterious people.

This first volume of the new series with its elegant printing and fine plates is a worthy product of its famous press and in it Professor Beazley sets a high standard for his successors. G.F.F.

DIE SCHLESWIG-HOLSTEINISCHE KNICKLANDSCHAFT. *By* GUNTHER MARQUARDT. (*Schriften des Geographischen Instituts der Universität Kiel, Vol.* XIII, *no.* 3. *Kiel,* 1950). *pp.* X+90, *with* 29 *photographs and* 10 *maps in appendix. D.M.* 6.50.

The ' Knick ', whose contribution to the Schleswig-Holstein landscape forms the subject of this study, is a boundary-hedge raised on a mound. It is named from the knicking or cutting of the growing bushes or trees which is also a feature of English hedging, and in Plate 6 the author stands affectionately by an Oxfordshire *Knick*.

The author's interest is in the distribution and origin of this form of hedging, and he appears to have a practical interest in their advocacy as a protection from winds and strong sun. To explain them he invokes weather, soil and economic history. ('Klima, Boden und Mensch prägen das Aussehen der Knicklandschaft '). Protection from winds encouraged their construction ; the soil determines whether they shall bear hazel or birch on their crowns ; the history of land-reclamation and land-use has determined their shape and position.

A full analytical contents page, profusion of maps and 29 photographs make it easier for the reader with only a little German to follow the argument, see the evidence and ponder its significance for our own landscape. Why might a study prompted by Dr Marquardt's techniques be interesting on this side of the North Sea ?

All over Europe the hedge stands for a particular form of land-ownership and a particular technique of cultivation, and neither of these have been universal in the past. Whatever the crop and whatever the language of the man sowing within the hedge, it is very unlikely that anyone except the sower (or his master) decides what should be sown, how it should be tended, and when it should be gathered. The significance of the hedge field is that it erects a sign to all except one man, and the sign says : Keep Out.

There was a time, however, when fields bore a very urgent sign which read : Come In ; since their creation, maintenance, ploughing and manuring depended very much on other men and their animals *not* keeping out.

Our knowledge of the pace and place of enclosure in England is beginning to be detailed enough for us to be more particular, and to speak of enclosure-when and enclosure-where. The hedge arrived at different times and for different purposes. Land coming straight into cultivation at a rather late date, and in country not tempting to earlier settlers had every chance of going straight into the individually-hedged field and by-passing the open-field stage which persisted in some villages until Victorian times.

Dr Marquardt's lesson to us should be that the hedges themselves, if carefully examined and their distribution mapped, might afford another clue to enclosure-when. Such a study would also make us more particular about speaking of the English hedge in general terms, instead of the hedge-what-of, the hedge-where and the hedge-when. Field-study would enable us to dispose of the first two questions, but only a close marriage of field-work and documents would enable us to fit hedge-types to periods of enclosure in various districts ; and thus to use hedge-types and field-shapes as clues to the dating of enclosure where documents have not survived. Dr Hoskins and Mr Finberg have recently done something to give historical explanation to the deep-sunken Devon lanes and their sturdy, high-banked *Knicken* hedges. The Midland field, drawn out by the surveyors' pencil at enclosure and hedged or fenced according to the best advice of the 18th century agricultural hand-books, is another clear type. The large, irregular-shaped field of the 16th century enclosures for pasture can also be seen on the 6-inch Ordnance map by its very individuality among its rectangular neighbours. There are many such on the Buckinghamshire landscape.

If other books like this one from the Continent can set us thinking about and looking at our own historical landscape they will not be a luxury import. M. W. Beresford.

BAROQUE AND RÓCOCO IN LATIN AMERICA. *By* Pál Kelemen. *pp.* xii, 302, 192 *plates. Macmillan, New York*, 1951. $16.50.

The most abundant material for a study of this kind is to be found in the churches and this book deals primarily with them and their furnishings, although houses are not excluded. Retables, images, pictures, organs, stalls, benches, cupboards and related objects are included in it, but not silver or textiles. The bibliography gives an idea of the extent of the previous work on limited areas, but this is the first attempt to survey Colonial art as a whole. It has resulted in an appreciation of the great variety of the ways in which Indian and Mestizo workmen from different places reacted to stimuli from Europe, with the result that many local styles developed within the Baroque pattern. That such variations existed has long been known, an obvious instance is the difference between Cuzco and Arequipa both in Southern Peru, but their extent has been forcibly demonstrated by Mr Kelemen. The work has involved much travel, and no little hardship, as anyone will realise who has left the beaten track in Latin America. The book is beautifully produced, and the illustrations, many of them from photographs by the author's wife, would by themselves make it a prized possession.

After introductory chapters entitled ' The Colonial Scene ' and ' The Artistic Climate ', which set the scene, and one on the Cathedrals, which is a preliminary canter over the field, there follows one dealing with representations of our Lord and the Cross, called ' Christ in the New World '. Most of the following chapters treat the subject geographically, but the sequence is interrupted by two on sculpture and

statuary, one general and the other on the outstanding school of Quito, separated, not quite logically, by a chapter on the buildings of Central America called 'Earthquake Baroque'. Two chapters, on painting and on organs, precede the final regional chapter on Brazilian Rococo, which is reasonable since they treat principally of countries other than Brazil. On the other hand, a special chapter on woodcarving, 'The Woodcarvers' Language', covers the whole field and falls well into place at the end.

Many of the illustrations are taken from objects not previously published, which increases our debt to the author. Among them is one of the finest things in the book, namely Plate 79, the figure in the *camarín* behind the high altar of San Francisco at Popayán, Colombia, which is also shown on the dust cover. This seems to represent a fusion of the Immaculate Conception with the Woman in Chapter 12 of the Apocalypse, as the author reasonably suggests, but it is worth pointing out that the captions to this and the following plates, saying that they represent the Visions of the Fifth and Sixth Seals, do not refer to the seals in Revelation Chapter 6 as one might expect, but to what the author calls 'mystic lore'.

Travellers in Latin America will know what a wealth of this art is to be seen there, but the forces of destruction are many and only too successful, as Mr Kelemen points out. We already owe him a great debt for the pleasure this book will give; it will be multiplied many times if his efforts serve to awaken Church and People in Latin America to the value of their heritage. G. H. S. Bushnell.

THE EARLY CULTURES OF NORTH-WEST EUROPE. Twenty-two Essays written in honour of H. M. Chadwick. *Edited by* Sir Cyril Fox *and* Bruce Dickins. *Cambridge, University Press*, 1950. xvi+442 *pp., with* 17 *text figures and* 12 *plates.* 63*s.*

These essays range over the field in which the late Professor Chadwick himself was interested. The emphasis lies, naturally, on the archaeology and early history of these islands, in particular on Anglo-Saxon England, and on British relations with the Scandinavian north. The earliest, a study of the Long Barrow in Western Europe, by Mr Glyn Daniel, carries us back to the late Neolithic. The latest, by Mr C. E. Wright, is concerned with a 17th century antiquary, Sir Edward Dering and his 'Saxon' charters. No reviewer less learned than the scholar in whose honour the volume was compiled could hope to do justice to the varied fare provided; it must suffice to note and comment on some of the contents.

Eight papers are classed as archaeological. In this section the most notable contribution is Mr de Navarro's study of the British Isles and the beginning of the Northern Early Bronze Age. In a fully documented discussion of the material he brings out the part of these islands in the formation of this culture and illustrates the reflex influence of Scandinavia on Britain. In absolute terms he dates the Northern Early Bronze Age from between *c.* 1425 and *c.* 1400 B.C. down to 1300 or slightly later. Miss Clare Fell contributes an admirable regional survey of the beakers found in Cumberland and Westmorland. Sir Cyril Fox has assembled from his detailed reports on barrows in South Wales the evidence bearing on the ritual used in the construction, a subject too long neglected by excavators. His plea for the total exploration of royal burial mounds should not be neglected. The Norse Heritage of the Isle of Man is treated by Mr and Mrs Megaw, who indicate the need for re-examining accepted views on some of the early Christian remains of the island.

The rubric Celtic is headed by an article in which Mr T. G. Powell attempts, not altogether convincingly, to correlate the archaeological evidence with literary traditions of

the Celtic settlement of Ireland. His survey clears away many misconceptions, but the material is hardly ripe for so far-reaching a reconstruction. Mr Kenneth Jackson discusses the Ogham inscriptions of Southern Britain and their dating. He would place the ' bilingual ' stones between the mid-5th and early 7th century. In a footnote he criticizes the weight laid on the Cadfan stone as a criterion of date, but his conception of the successors of a powerful king, who ' might easily have ordered the very newest decorative lettering from the Continent ' does not ring true to the conditions of Celtic society in the 7th century.

Anglo-Saxon studies claim a further eight papers. Following a clue left by the late Max Förster, Professor Bruce Dickins produces the missing part of a manumission in the Exeter Book from Leofric's Gospels in the Cambridge University Library (11, 2, 11). The Moore memoranda on Northumbrian History are discussed by Mr Hunter Blair and the post-Bedan Miracles and Translation of St. Cuthbert by Mr B. Colgrave. Literary studies are contributed by Miss D. Whitelock, who provides a new interpretation of the Seafarer, and Miss J. I. Young. Mr Bromwich argues cogently in favour of the Alfredian authorship of the prose portion of the Paris Psalter. Finally we may note two articles on Norse studies and one on the Fenland Place Names. C.A.R.R.